Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

EXPERIMENT STATION
MAY 5 1964
STATION LIBRARY COPY

The TIMBER RESOURCES of WEST VIRGINIA

U. S. FOREST SERVICE RESOURCE BULLETIN NE-2
1964

NORTHEASTERN FOREST EXPERIMENT STATION, UPPER DARBY, PA.
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE
RALPH W. MARQUIS, DIRECTOR

PREFACE

TO PROVIDE up-to-date information about the forest resources of the Nation, the Forest Service, U. S. Department of Agriculture, conducts a series of continuing forest surveys of the various states.

This is a report on the latest forest resurvey of West Virginia, made by the Northeastern Forest Experiment Station. It supersedes a report published in 1952, which contained forest-resource data based on an earlier survey made by the Northeastern Station.

In this resurvey, a scientifically designed sampling system, partly based upon remeasured plots, was used. Data were collected and analyzed by the forest-survey staff of the Northeastern Forest Experiment Station, except for the area of the Monongahela National Forest, in which the resurvey field work was done by National Forest personnel.

Users of the data in this report are cautioned to read with care the definitions of the terms used, the description of the forest-survey methods, and the statements pertaining to the reliability of the estimates.

The TIMBER RESOURCES of WEST VIRGINIA

by

Roland H. Ferguson

Northeastern Forest Experiment Station
Forest Service, U. S. Dept. Agriculture

The Author

ROLAND H. FERGUSON *is a forest economist in the Northeastern Forest Experiment Station's Division of Forest Economics Research. He received his Bachelor of Science degree in forestry at Oregon State College in 1931, and joined the U. S. Forest Service in 1934. After serving in the southern pine and Douglas-fir regions, he came to the Northeast in 1945, since which time he has been engaged in various aspects of the forest survey.*

CONTENTS

Highlights 1
Forest area 3
Growing stock 7
Sawtimber volume 10
Timber growth and cut 13
Changes between surveys 15
The resource explosion 23
Appendix 25
  Definitions of terms 25
  Forest-survey methods 32
  Reliability of the estimates 33
  Species tallied 33
  Statistical data 35
    National standard tables 35
    Geographical sampling strata tables 63
    County tables 88
  Forest type map 123

Highlights

TWELVE years ago, the Northeastern Forest Experiment Station published a report on forest statistics for West Virginia. The data were based upon forest-survey sample plots established in 1946-49 and upon a timber-product-utilization survey. Many significant changes in the timber resource have taken place since then. To bring the forest statistics up to date, the forests of West Virginia were recently resurveyed. In this resurvey, completed in 1961, some of the original forest-survey plots were remeasured and additional new forest plots were established. This resurvey showed that—

- Commercial forest land in 1961 amounted to 11,389,000 acres, an increase of 1,500,000 acres.

- Net volume in trees 5.0 inches d.b.h. and larger amounted to 11 billion cubic feet. This is an increase of almost 5 billion cubic feet.

- Volume in red oaks, yellow-poplar, chestnut oak, and hickory increased by more than ½ billion cubic feet each.

Sawtimber volume (softwood trees 9.0 inches d.b.h. and larger and hardwood trees 11.0 inches d.b.h. and larger) amounted to nearly 29 billion board feet, an increase of almost 65 percent.

Sixty percent of the current sawtimber volume is in trees 15.0 inches in diameter and larger at breast height.

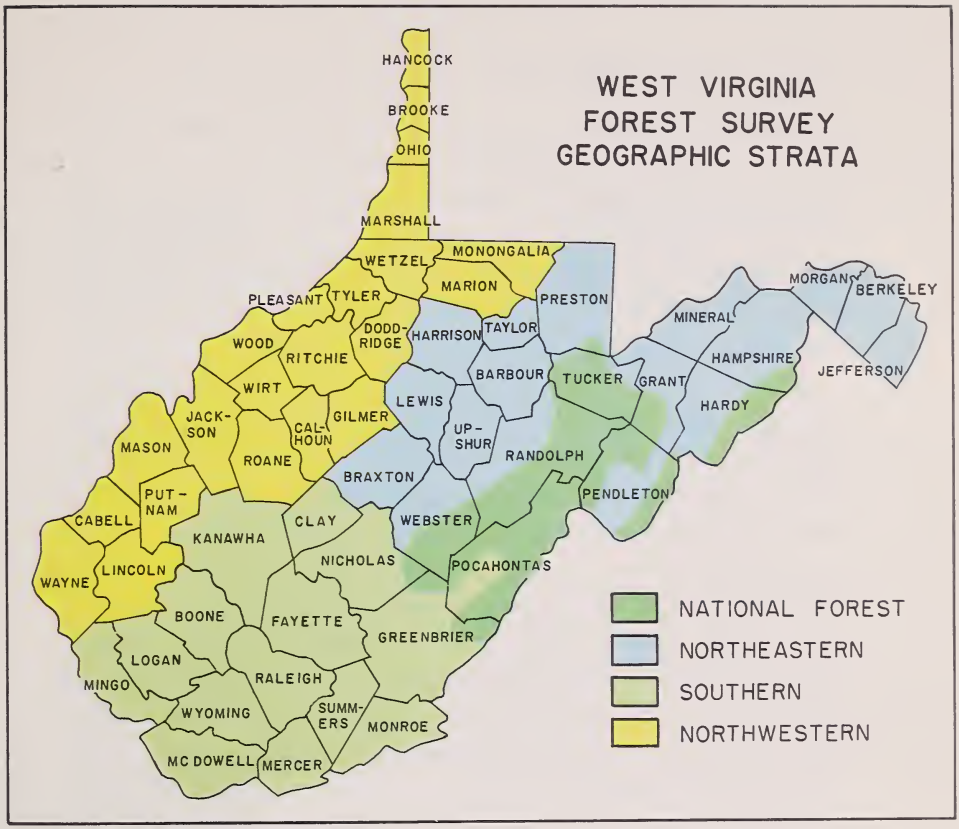
Net annual growth of trees 5.0 inches d.b.h. and larger is 370 million cubic feet. Ingrowth (saplings that became poletimber during the inventory year) makes up 200 million cubic feet or 54 percent of the net annual growth. Timber cut for all products in 1960 was 119 million cubic feet.

Net annual growth of sawtimber is 1,041 million board feet, and the sawtimber volume cut in 1960 was less than one-half of the net annual growth.

In this resurvey of the timber resources of West Virginia, the data were broken down into greater detail than in other forest surveys, to provide data not only for the State as a whole, but also for subsections of the State. To this end, West Virginia was divided into four geographic sampling strata: (1) National forest land; (2) the northeastern section; (3) the southern section; and (4) the northwestern section (fig. 1).

The findings of the resurvey are described in the text pages that follow. An appendix at the end of this report contains details about the forest survey, and 98 tables of statistical data, including data for the four geographic sampling areas and the counties in them.

Figure 1.—Forest-survey geographic sampling strata in West Virginia.



Forest Area

ALMOST three-fourths of the land area in West Virginia is now covered by forest. Although these forests serve a number of uses, here they will be looked at as present and future sources of timber for industrial use.

Commercial forest-land area in the State amounts to 11,389,000 acres. A relatively small amount of forest land (less than 1 percent) is classified as noncommercial. About 34,000 acres of noncommercial forest land are considered unproductive because of adverse site conditions, and 46,000 acres have been withdrawn

from timber utilization (table 1, in appendix). Most of the reserved forest land is in State parks, and some is in the National forests.

Forest-Land Ownership

Forest-industry holdings in West Virginia amount to 530,000 acres, only 5 percent of the commercial forest land (table 2). National Forest land (775,000 acres on the Monongahela National Forest and 94,000 acres on the George Washington National Forest) makes up 8 percent, and State-owned forest land makes up 1 percent. Farmers own one-fourth of the total commercial forest land.

But the bulk of the commercial forest land—7,000,000 acres, about 60 percent of the total—is owned by large coal and landholding companies and corporations and by diverse individuals such as businessmen, laborers, professional people, clerks, housewives, and retirees.

Stand-Size Classes

Stand-size class[1] in 1961 was determined by a plurality of stocking based upon numbers of trees. For example, sawtimber stands have to be more than one-half stocked with sawtimber and poletimber trees and the sawtimber stocking must be at least equal to poletimber stocking.

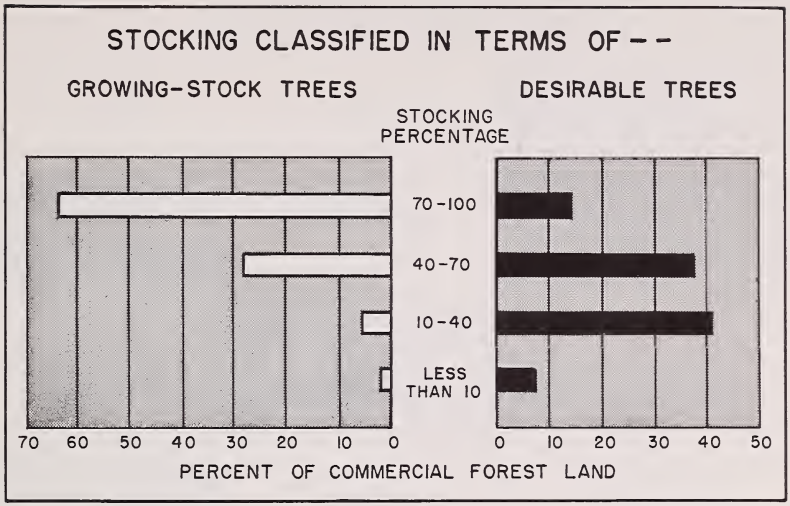
About one-half of the commercial forest land—5,605,000 acres—supports sawtimber stands (table 3). Twenty-seven percent of the forest land is covered by poletimber stands. Sapling-and-seedling stands and nonstocked areas make up a little less than one-fourth of the commercial forest-land area.

Stocking of Forest Land

Almost all the commercial forest land is well stocked with some kind of trees. Ninety-five percent of the forest area is more than 70 percent stocked, if cull trees and trees of noncommercial species are included. If only the growing-stock trees are considered in this percent-stocking class, the percentage drops to 63 percent

[1] See appendix for definitions of this term and other terms used in this report.

Figure 2.—In terms of growing-stock trees, most of the commercial forest land in West Virginia is well stocked, but in terms of desirable trees, the land is not well stocked.



(fig. 2). If only the trees of highly-valued species are considered —such as northern red oak, hard maple, and yellow-poplar—or less-valued species such as blackgum and beech that contain a grade 1 or grade 2 butt log—the area that is more than 70 percent stocked with such trees amounts to only 14 percent of the commercial forest land.

Area-Condition Classes

Stocking in terms of *desirable trees* is used to classify forest stands into area-condition classes. These classes are based upon minimum percentages of area occupied. A key to the specifications for each area-condition class is shown in figure 3. For example, class 1 has a minimum of 70 percent stocking with desirable trees. The other 30 percent could consist of land already stocked with such trees, or of land on which desirable trees will naturally restock, or of land on which desirable trees cannot naturally restock, or of any combination of these conditions. The acreage of class 1 amounts to 1.6 million acres (table 7).

Stands classified as area-condition classes 2 and 4 are less than 70 percent stocked with desirable trees but have less than 30

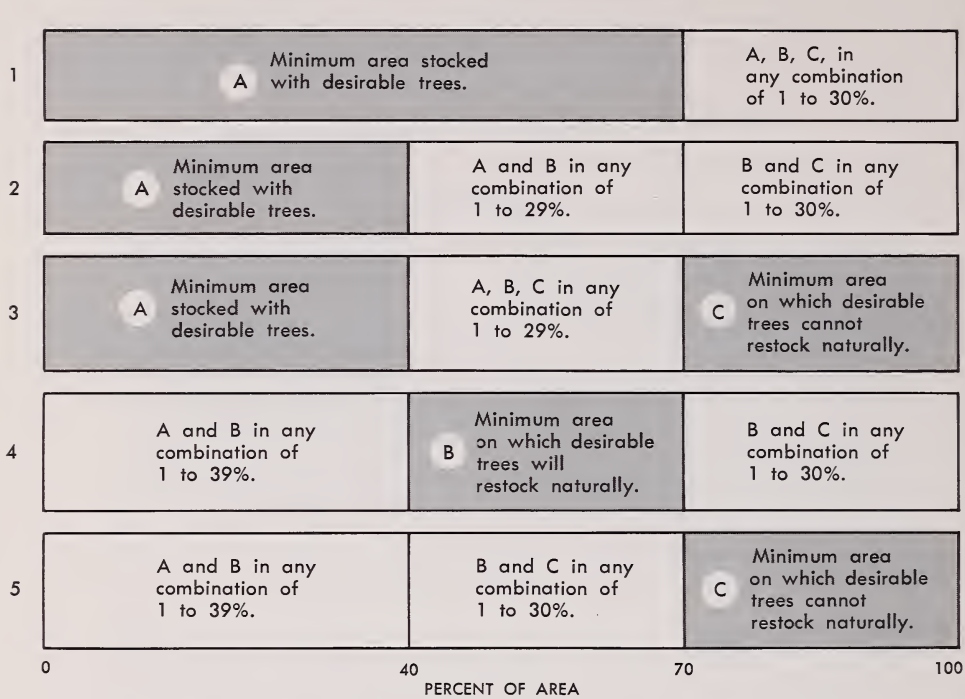


Figure 3.—Area-condition classes are based upon minimum percentages of area that are occupied or could be occupied by desirable trees.

percent of the area controlled by inhibiting vegetation, water, or rock and have an adequate seed source and seedbed conditions favorable to natural restocking. (See appendix for a more complete definition.) Acreage in these classes totals 2.9 million acres. These three favorable area-condition classes make up about 40 percent of the commercial forest-land area in West Virginia.

Other Classes of Forest Area

The remeasurement of permanent sample plots in West Virginia provided for the first time the means for evaluating the forest land in terms of cubic-foot growth per acre. More than

three-fourths of the commercial forest land in the State is producing less than 50 cubic feet of growing-stock volume per year (table 8). Seventeen percent produces 50 to 85 cubic feet per acre per year, and 7 percent produces more than 85 cubic feet.

Forest-type classifications were based upon a plurality of basal area for certain indicator species whenever a sufficient number of trees were tallied on a plot. If an insufficient number of trees were present, the fieldmen classified the forest type.

The oak-hickory forest type covers two-thirds of the commercial forest-land area—7.5 million acres (table 9). The maple-beech-birch type is the next most prevalent forest type; it accounts for one-fifth of the area. Softwood forest types make up only 6 percent of the total forest area—some 700,000 acres.

A forest cover type map that shows a generalized delineation of the major forest types is in the appendix (fig. 17).

Growing Stock

Growing stock is made up of the net cubic-foot volume in trees 5.0 inches d.b.h. and larger, including both poletimber and sawtimber, between the stump and a minimum 4-inch top diameter of the central stem. The total growing-stock volume on commercial forest land in West Virginia amounts to 11,060 million cubic feet. Sawtimber stands have an average of about 1,370 cubic feet per acre, and poletimber stands have 890 cubic feet per acre.

Volume in poletimber trees makes up 40 percent of the total. The volume in sawtimber trees makes up 60 percent—56 in the sawlog portion and 4 in the upper-stem portion (table 13). Hardwood species account for 95 percent of the total volume.

In addition to the growing-stock trees, there are sawtimber-size cull trees (trees that do not contain a sawlog or that are of noncommercial species) that take up growing space. One tree out of every five sawtimber trees in West Virginia is a cull tree (tables 11 and 12). For every 1,000 cubic feet of growing stock there is an additional 85 cubic feet of sound wood in almost worthless cull trees.

Ownership

More than 10 percent of the growing-stock volume is on National forest land (table 14). The average volume per acre of the National forests is 1,400 cubic feet, about 50 percent greater than the average volume per acre on all commercial forest land outside the National forests. This is due in part to the relatively small acreage of seedling-and-sapling stands and nonstocked areas in the National forests.

On other public-owned forest land, growing-stock volume amounts to 4 percent of the total; and on forest-industry holdings growing-stock volume amounts to 6 percent. The bulk of the volume (four-fifths of the total) is owned by farmers and all other kinds of private owners.

Species Distribution

Oaks make up more than 40 percent of the hardwood volume, 4,437 million cubic feet (table 16). The oak volume is about equally divided between the more desired species—white oak and northern red oak—and other white and red oaks (fig. 4). Hickory and yellow-poplar are the next most abundant species: each accounts for about 10 percent of the hardwood volume. Sugar maple, red maple, and beech individually make up 5 to 7 percent of the volume.

Pitch pine, Virginia pine, and hemlock make up almost two-thirds of the softwood volume. Shortleaf pine, white pine, and spruce make up the balance.

Cordwood Equivalent

Cubic-foot volume can be converted to standard cords by dividing by 80. However, this is only an approximation. On this basis there are about 138 million cords of growing stock—an average of about 12 cords per acre of commercial forest land. Twenty-four percent of the commercial forest land area at present has less than 3 cords per acre.

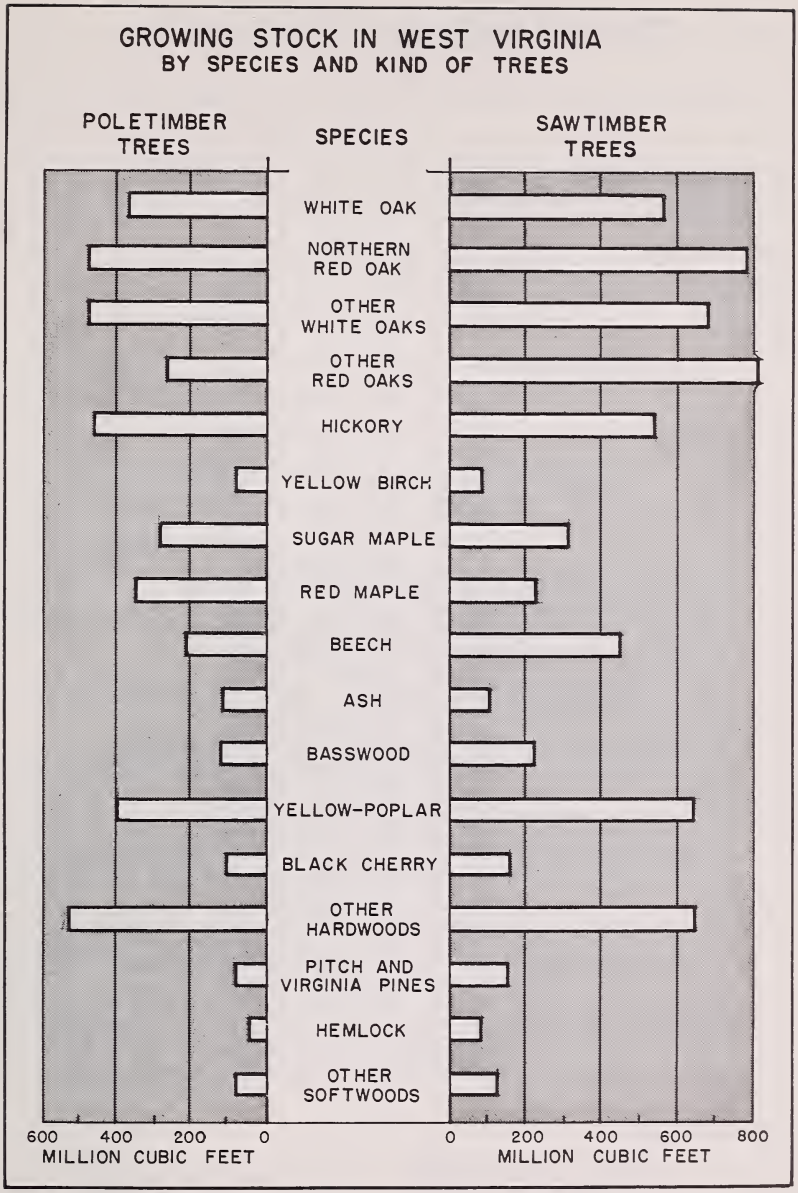


Figure 4.—Hardwoods make up 95 percent of the total cubic-foot volume. Volume for sawtimber trees is greater than for poletimber trees for most species. The average ratio is 6 to 4.

Sawtimber Volume

Softwood trees 9.0 inches in diameter and larger and hardwood trees 11.0 inches and larger that meet minimum specifications for sawtimber were measured for the estimate of board-foot volume based upon the International ¼-inch log rule. Net sawtimber volume on commercial forest land in West Virginia amounts to nearly 29 billion board feet.

Species Distribution

One-fifth of the total board-foot volume is in the oaks of the more desired species—white oak and northern red oak (table 17). Twenty-three percent is in the less desired species such as chestnut oak, black oak, and scarlet oak. Yellow-poplar, next in abundance, makes up to 10 percent of the total, and hickory makes up 8 percent. The volume in softwoods is relatively small, only 1.6 billion board feet; and it makes up almost 6 percent of the total volume for all species.

Ownership

Sawtimber volume on National forest land (2.9 billion board feet) amounts to 10 percent of the total (table 14). Other public ownerships (mainly the State) and holdings of forest industries together account for about another 10 percent. Farmers and other private individuals and organizations own the remaining 23.2 billion board feet—80 percent of the total. The timber is less concentrated in these ownerships and averages 2,400 board feet per acre for commercial forest land; the average volume per acre for public ownerships and industrial holdings is 3,600 board feet.

Stand Size

More than 80 percent of the current sawtimber volume is in sawtimber stands (table 15). These stands contain an average of 4,300 board feet per acre. Thirteen percent of the total is in pole-timber stands that have an average volume per acre of 1,170 board feet. The remaining volume (4 percent of the total) is in sawtimber trees scattered about in some of the seedling-and-

sapling stands, and this volume averages less than 500 board feet per acre.

Timber Quality

About 60 percent of the board-foot volume is in trees 15.0 inches in diameter and larger at breast height. These larger-size trees greatly influence the amount of volume in high-quality grade 1 standard-lumber logs. This grade requires that the scaling diameter at the small (top) end of the butt log shall be a minimum of 13 to 15 inches for most hardwood species.

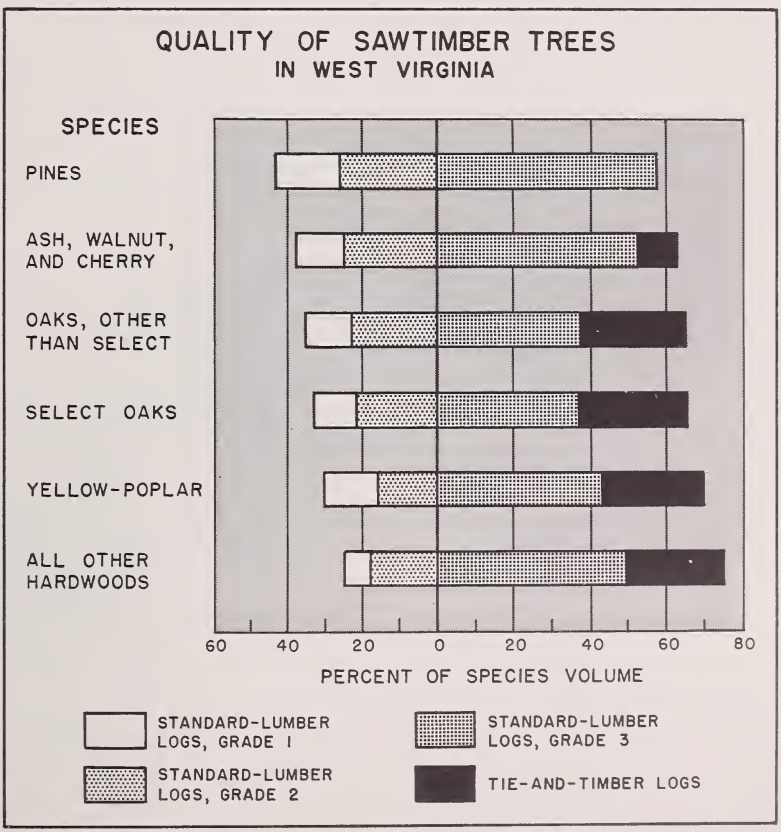


Figure 5.—Most of the principal species in West Virginia have one-third or more sawtimber volume in the better standard-lumber log grades 1 and 2.

For both hardwoods and pines, there are three standard-lumber log grades. For hardwoods there is an additional class: tie-and-timber logs. A hardwood sawlog that fails to meet the minimum specifications for a grade 3 standard-lumber log but meets certain other specifications is classed as a tie-and-timber log.

Ten percent of the volume in hardwood sawtimber trees meets the minimum specifications for grade 1 standard-lumber logs (table 18). These logs are expected to yield about two-thirds of their volume as No. 1 common and better standard lumber. Yellow-poplar has a greater proportion of grade 1 standard-lumber logs than any other hardwood—14 percent (fig. 5).

Twenty percent of the hardwood sawtimber volume meets the minimum specifications for grade 2 standard-lumber logs that should yield about one-half of their volume as No. 1 common and better. Forty-five percent meets the minimum specifications for grade 3 and should yield about one-fifth of its volume as No. 1 common and better standard lumber. Twenty-five percent is classified as tie-and-timber logs.

Most of the softwood sawtimber volume is of value to the lumber industry. Only the pines were classified into three standard-lumber log grades: all other softwoods were graded into one class. About one-sixth of the white pine and yellow pine meets the minimum specifications for grade 1 standard-lumber logs, and about one-fourth meets the specifications for grade 2.

Timber Growth and Cut

Timber volume in West Virginia is increasing. More wood is being grown than is being cut—370 million cubic feet versus 120 million. The estimate of timber growth is based upon re-measured sample plots and not upon increment-core measurements.

Growing Stock

The 370 million cubic feet are composed of three parts: *increase in volume* of surviving growing-stock trees that were already 5.0 inches in diameter and larger, plus *ingrowth* (the volume of trees that become 5.0 inches in diameter and larger during the period between surveys), less *volume of dead trees.* Components of net annual growth of growing stock and their volumes, in millions of cubic feet, are:

Growth on growing stock	214
Ingrowth into poletimber	+200
Total growth	414
Annual mortality	— 44
Net annual growth	370

Ingrowth makes up almost half (48 percent) of the total growth. This implies that the average timber stand in the State is young and vigorous. In the 1949 survey, ingrowth made up almost one-fourth (24 percent) of total growth.

Most of the net annual growth, and also the timber cut, is made up of the various species of oak (fig. 6). Oaks (principally white oak and northern red oak) make up 37 percent of the growth and 45 percent of the cut (table 21). Yellow-poplar makes up about 13 percent, softwood species about 7 percent, and hickory about 6 percent of the total growth. All other hardwood species combined account for the rest of the net annual growth, an amount equal to that for the oaks.

Although the amount of timber growth appears large when compared to the amount that is cut, it is not large when examined in terms of annual growth per acre. The average net annual growth per acre for poletimber and sawtimber stands in West Virginia is 40 cubic feet, or ½ cord per acre per year. Sawtimber growth for only sawtimber stands is 150 board feet per acre per year.

Sawtimber

The relationship of net annual growth to timber cut for sawtimber trees is about the same as for growing stock—sawtimber volume is increasing for most species. One billion board feet of sawtimber is added to the forest inventory each year, and a little less than ½ billion board feet is being cut (table 23). The

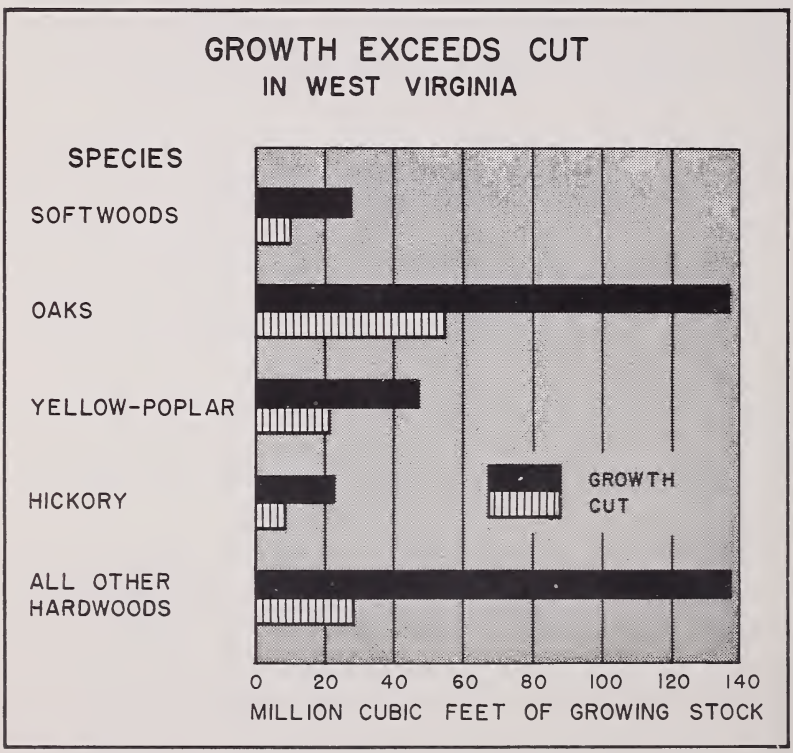


Figure 6.—Net annual growth of growing stock is more than three times the volume cut in 1960.

growth is about equally divided between the increase in volume of sawtimber trees and ingrowth, the volume of trees that become sawtimber size during the interval between surveys.

Mortality

The net annual growth that has been referred to is total growth less mortality. The remeasurement of permanent forest-survey sample plots in West Virginia has provided, for the first time, an excellent means of estimating timber loss due to mortality. The volume of growing stock that dies each year amounts to 43.9 million cubic feet, approximately 10 percent of total growth (table 25). About one-half of this volume is in sawtimber trees, a loss of about 98 million board feet.

Causes of mortality are difficult to ascertain, but most probably disease is the principal cause, accounting for almost 60 percent of the growing-stock volume loss. Fire accounts for 11 percent; and all other causes, such as man, animal, and lightning, account for about 30 percent of the total loss.

Changes Between Surveys

Changes in estimates can be due to a combination of two possibilities: real changes that have taken place between the two surveys, and apparent changes inherent in sampling. For example, each estimate of total commercial forest land for the two surveys had a sampling error of 0.7 percent, at the 66.8-percent probability level. This means that in 1949 the actual acreage probably fell between the limits of 9,791 and 9,929 thousand acres, and in 1961 it probably fell between 11,309 and 11,469 thousand acres. The difference between the minimum acreage for 1961 and the maximum acreage for 1949 is 1,380 thousand acres.

Most of the increase of commercial forest land is undoubtedly due to a real change. This is supported by the fact that more than 1½ million acres of open farm land were abandoned in the inter-

val between the two surveys. The U.S. Census of Agriculture for 1959 shows that the number of farms in West Virginia decreased from 81,434 in 1950 to 44,011 in 1959. In this same period the acreage of open land on farms (cropland and pasture other than woodland) decreased by 31 percent (1.4 million acres).

The increases in growing-stock and sawtimber volumes can be attributed to the greater volume of net annual growth as compared to the amount of timber cut each year. Increase in growing-stock volume is also due to the increase in commercial forest-land area.

Forest Area

Commercial forest land increased, during the 12 years between surveys, by 1.5 million acres to the current total of 11.4 million acres. The largest increase is in the northwestern section of the State—about 800,000 acres. Changes in area of commercial forest land for each of the geographic strata are:

	1949 (million acres)	*1961 (million acres)*	*Change (percent)*
National forest land	0.9	0.9	—
Northeastern section	3.0	3.4	12
Southern section	3.7	4.0	9
Northwestern section	2.3	3.1	35
State total	9.9	11.4	15

The forest area classified as sawtimber stands increased more than any other stand-size class, from 4.4 million acres to 5.6 million acres (fig. 7). In the 1961 survey, sawtimber stands were those that had a plurality in the number of sawtimber trees. In 1949, sawtimber stands were those that had a minimum of 1,500 board feet per acre (International ¼-inch rule). Area in poletimber stands decreased slightly during the same period. The area in seedling-and-sapling stands increased by about 600,000 acres.

Associated with these changes is the stocking per acre of forest land. In 1949 the average net volume per acre of all growing stock was 630 cubic feet; now it is 970 cubic feet—approximately a 50-percent increase. Sawtimber stands increased from 3,500 board feet per acre to 4,300 board feet, and poletimber

stands increased from 450 to 890 cubic feet per acre. These changes by stand-size class are probably due to the 1961 classification used (see definitions in appendix) as opposed to the volume-per-acre classifications used in 1949.

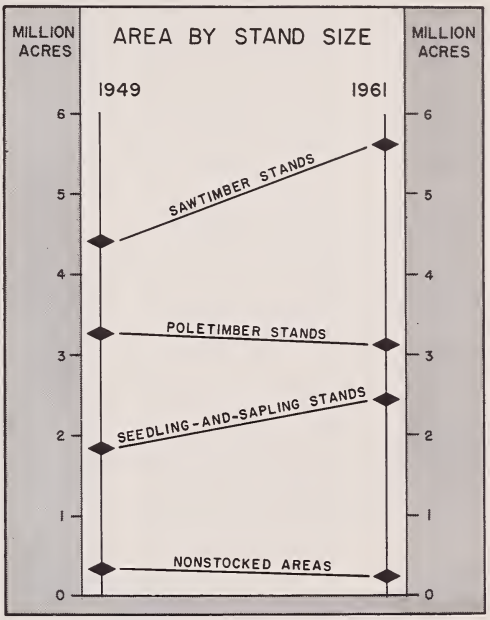


Figure 7. — The largest increases in area occurred in sawtimber stands and in seedling - and - sapling stands.

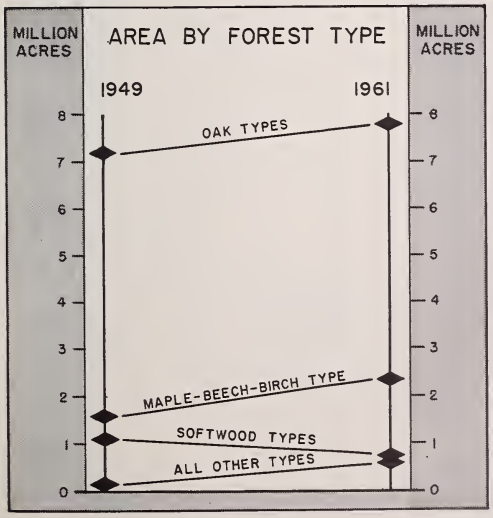


Figure 8. — All forest types except softwoods increased in acreage.

All forest types except the softwoods also increased considerably in acreage. Oak types increased by almost 600,000 acres, maple-beech-birch types by more than 750,000 acres, and all other hardwood types by 500,000 acres (fig. 8).

The acreage in the softwood forest types—white pine, spruce, and loblolly-shortleaf pine—decreased by about 300,000 acres. In 1949 the area in softwood types made up almost 11 percent of the commercial forest-land area, but by 1961 the percentage had dropped to 6 percent of the total. Most of the decrease in acreage was in the loblolly-shortleaf pine type.

Growing-Stock Volume

Growing-stock volume increased by almost 5 billion cubic feet during the 12 years between surveys. This is almost an 80-percent increase. Most of the increase was in the hardwood species; the volume of softwoods increased only 11 percent.

Total volume in sawtimber trees doubled, from 3.3 to 6.6 billion cubic feet; and in the 12-inch, 14-inch, and 16-inch d.b.h. classes the volumes more than doubled (fig. 9). The volume in

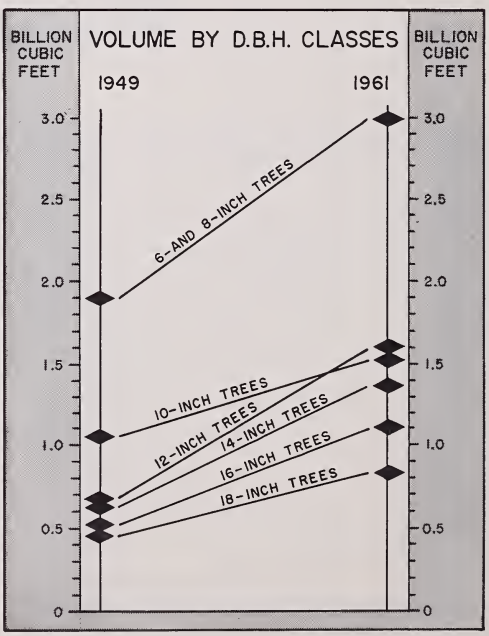


Figure 9.—The volume in the 12-, 14-, and 16-inch d.b.h. classes more than doubled in 12 years.

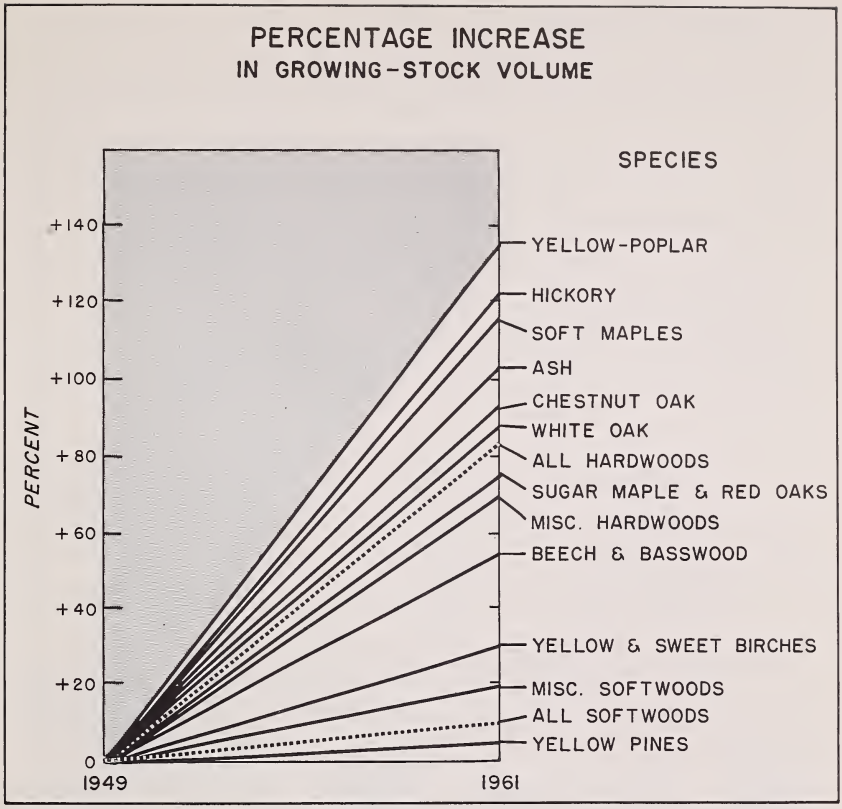


Figure 10.—Some species more than doubled in cubic-foot volume during the 12-year period.

poletimber trees increased by more than 1½ billion cubic feet, 56 percent more than it was in 1949.

Growing-stock volume in red oaks increased greatly—more than 1 billion cubic feet. Next largest gain in volume was by yellow-poplar, which had an increase of 600 million cubic feet. Chestnut oak and hickory closely followed yellow-poplar, each with an increase of more than 500 million cubic feet.

Yellow-poplar, however, had the greatest increase in terms of percentage (137 percent) and was followed by hickory and red maple—123 and 118 percent, respectively (fig. 10). The average increase for all hardwoods combined was 85 percent.

Sawtimber Volume

Sawtimber volume increased by almost 11¼ billion board feet between the two surveys, an increase of almost 65 percent. One-half of this increase (5.6 billion board feet) was in sawtimber trees of less than 15.0 inches d.b.h. These trees increased in board-foot volume by 92 percent. This increase was due partially to the large amount of ingrowth (volume of trees that became sawtimber size during the period).

Changes in sawtimber volume on commercial forest land in West Virginia, by diameter-class groups, were as follows:

D.b.h. class (inches)	*1949 (billion board feet)*	*1961 (billion board feet)*	*Increase (percent)*
Under 15.0	6.1	11.7	92
15.0 to 18.9	5.2	8.7	67
19.0 to 28.9	5.5	7.6	37
29.0 and over	.7	.7	—

Sawtimber volume in red oaks increased by more than 2 billion board feet—a 44 percent increase (fig. 11). Yellow-poplar,

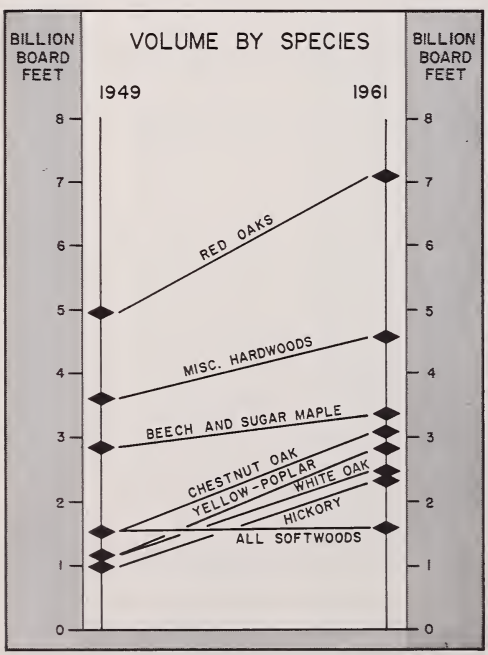


Figure 11.—The volume in red oak sawtimber trees increased by more than 2 billion board feet.

chestnut oak, hickory, and white oak doubled in board-foot volume, an increase of more than 1 billion board feet each. Red maple, ash, and black cherry also more than doubled in board-foot volume during the 12-year period.

The quality of sawtimber in West Virginia is about the same as it was estimated on the previous survey. The board-foot volume of standard-lumber logs in grades 1 and 2 increased in about the same proportion as the forest inventory.

The oak species made up a greater proportion of these better quality classes in 1961 than any of the other hardwood species. Board-foot volume for grades 1 and 2 standard-lumber logs of all oaks increased by about 1.5 billion board feet (a little more than 50-percent increase). The volumes in these same grades for hickory increased by 360 million board feet, and for yellow-poplar 420 million board feet. Total volume of all hardwood species in the better quality grades increased by 2.8 billion board feet.

In 1961, grades 1 and 2 of all hardwood sawtimber volume made up 31 percent of the total, and in 1949 they made up 34 percent (fig. 12). Yellow-poplar sawtimber volume in grades 1 and 2 made up 30 percent of the total in 1961, but in 1949 these grades accounted for 38 percent. The same grades for white pine and the yellow pines accounted for 42 percent of the total volume for these species in 1961 and 39 percent in 1949.

Pines were the only softwoods graded into standard-lumber log classes. If the sawtimber volume of pines less than 13.0 inches d.b.h. were excluded (it is impossible for softwood trees of this size to have a grade 1 sawlog because of the minimum log-diameter specifications), the percentage of board-foot volume in grade 1 would increase from 17 percent to 38 percent of the total.

All the hardwood species were graded. If the sawtimber volume of hardwoods less than 15.0 inches d.b.h. were excluded (it is impossible for hardwood trees of this size to have a grade-1 sawlog because of the minimum log-diameter specifications), the percentage of board-foot volume in grade 1 would increase from 10 percent to 17 percent of the total.

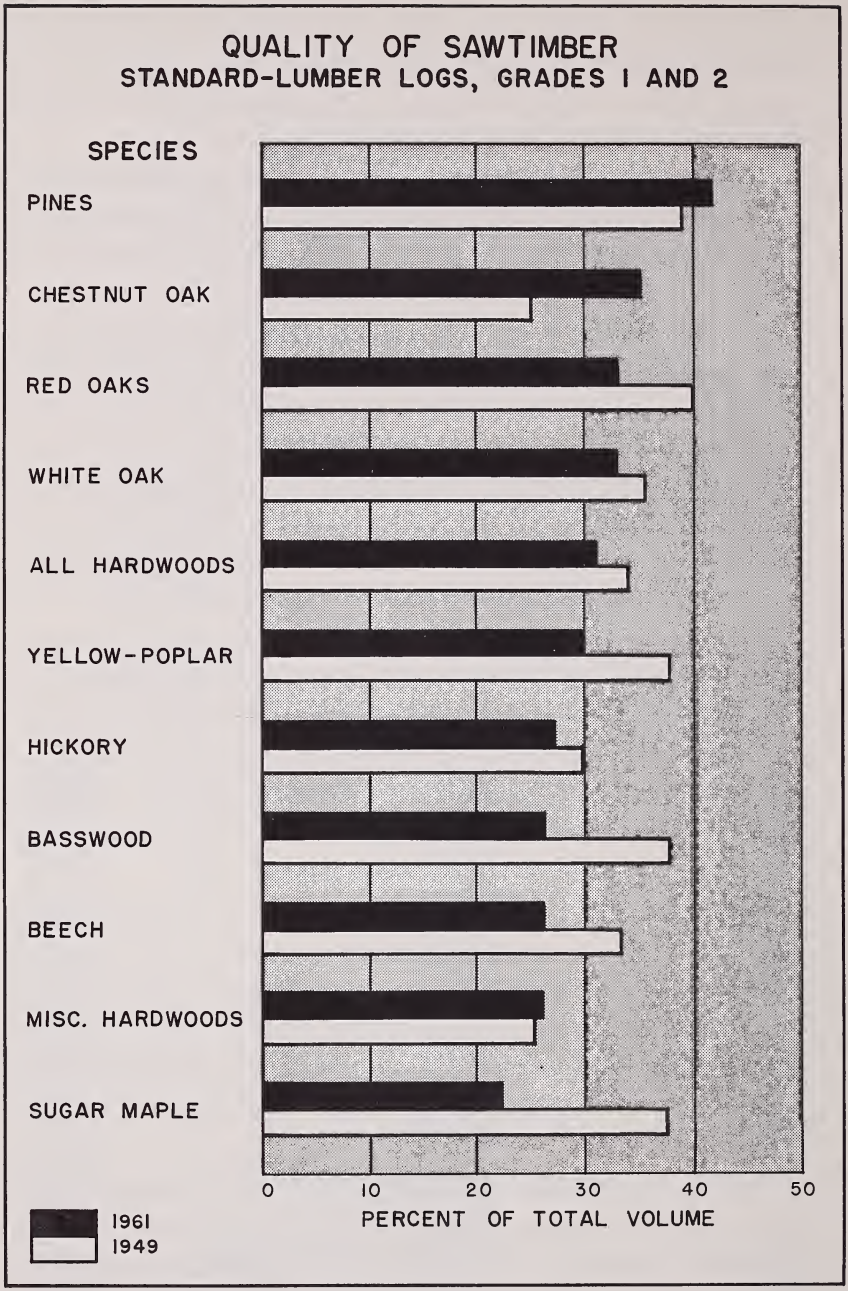


Figure 12.—The percentage of total board-foot volume in the better standard-lumber grade logs dropped for most species.

The changes that have been pointed out are the differences between two surveys; a few are affected by changes in definitions and are not necessarily trends. West Virginia will be resurveyed periodically (about every 10 to 15 years); and as each resurvey is completed, additional data will be available to show reliable trends in all important timber statistics.

The Resource Explosion

The statistics presented in this report reflect an *explosion* of timber supply in West Virginia during the 12-year period between surveys. Like an explosion, it was not all under control—loss in softwood volume, some loss in timber quality, excess proportion of ingrowth, a build-up of large volumes in the less desirable species. Yet all in all, the timber basket has filled at an unprecedented rate.

This explosion of the timber supply is partly a result of natural biologic phenomena—this 12-year period coincided with that portion of the life history of forests where changes occur rapidly. The marked increase in timber was also the result of man's influence on the forest—fire control, timber-stand improvement, tree planting, and application of management practices.

One result of this new plateau of timber supply is that future efforts to alter it can be more intensive. For example, more attention can be paid to changing species composition, stand structure, and quality distribution. Criteria of site productivity, accessibility to roads, proximity to markets, and community needs will probably affect priorities of timber-stand-improvement work. In other words, forestry activities can become more selective.

A major effect of this change in the timber basket is to accelerate the shift in attention to marketing and utilizing this present and potential resource.[2] Persons concerned with the timber budget in West Virginia have always weighed questions of supply and

[2] Hagenstein, Perry R. The Location Decision for Wood-Using Industries in the Northern Appalachians. U.S. Forest Serv. Res. Paper NE-16, 36 pp. Northeast. Forest Expt. Sta., Upper Darby, Pa., 1964.

demand. In 1949, there were obvious supply problems that merited immediate and critical attention. Now we may expect increased interest in timber demand. Since timber is a market product, policy makers will always be concerned with programs that affect both supply and demand. The swing of the pendulum merely indicates changes in emphasis.

■

Appendix

DEFINITIONS OF TERMS

Forest Area

Forest land area. — This includes: (a) lands that are at least 10 percent stocked with trees of any size and are capable of producing timber or other wood products, or of exerting an influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and that has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked with trees are excluded.)

Commercial forest land area. — Forest land that is (a) producing, or physically capable of producing, crops of industrial wood (usually sawtimber); (b) economically available now or prospectively; and (c) not withdrawn from timber utilization through statute, ordinance, or administrative order.

Noncommercial forest land area. — Forest land that is (a) withdrawn from timber utilization through statute, ordinance, or administrative order, but that otherwise qualifies as commercial forest land; or (b) incapable of yielding industrial wood products (usually sawtimber) because of adverse site conditions.

Timber Volume

Growing stock.—Net volume, in cubic feet, of live sawtimber and poletimber trees (see definitions under *Class of Timber*) from stump to a minimum 4-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot.

Sawtimber volume. — Net volume in board feet, International ¼-inch rule, of merchantable sawlogs in live sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Standard cord. — A unit of measure for stacked wood encompassing 128 cubic feet of wood, bark, and air space. Cord estimates can be derived from cubic-foot estimates by applying a factor of 80 cubic feet of wood (inside bark) per rough cord.

Tree Classes

All trees.—All live sawtimber and poletimber trees, seedlings and saplings, and all live cull trees.

Growing-stock trees.—All live sawtimber trees, poletimber trees, and seedlings and saplings, except cull trees. (See definitions under *Class of Timber*).

Desirable trees.—All growing-stock trees that now or prospectively have positive stumpage value (primarily for lumber production) and are likely

to remain in the stand for at least 10 years if not cut or otherwise deliberately killed.

Sawtimber trees are considered to have positive stumpage value now if they have a grade 1 or 2 butt log. Exceptions are made for several species that can have a lower quality butt log.

Poletimber trees are considered to have positive stumpage value if they will meet the above sawtimber tree requirements before becoming mature.

Stand-Size Classes

Stand.—A growth of trees on a minimum of 1 acre of forest land that is at least 10 percent stocked by forest trees of any size.

Sawtimber stands.—Stands that are at least 10 percent stocked with growing-stock trees and have half or more of this stocking in sawtimber and poletimber trees, with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.—Stands that are at least 10 percent stocked with growing-stock trees and have half or more of this stocking in sawtimber and poletimber trees, with poletimber stocking exceeding that of sawtimber stocking.

Seedling-and-sapling stands.—Stands that are at least 10 percent stocked with growing-stock trees and in which saplings and/or seedlings make up a plurality of this stocking.

Nonstocked areas.—Commercial forest lands that are less than 10 percent stocked with growing-stock trees.

Area-Condition Classes

Class 1.—Areas that are stocked 70 percent or more with desirable trees.

Class 2.—Areas that are stocked 40 to 70 percent with desirable trees and in which 30 percent or less of the area is controlled by other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Class 3.—Areas that are stocked 40 to 70 percent with desirable trees and in which more than 30 percent of the area is controlled by other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Class 4.—Areas that are stocked less than 40 percent with desirable trees and have adequate seed sources and seedbeds favorable to natural restocking.

Class 5.—Areas that are stocked less than 40 percent with desirable trees and have inadequate seed sources and/or seedbeds unfavorable to natural regeneration.

Forest Cover Types

The forest-type classification of each sample plot is based upon the majority of stocking by all live trees of various species. When no indicator species makes up a majority, the forest type is determined on the basis of plurality of stocking.

White pine.—Forests in which 50 percent or more of the stand is

eastern white pine. In West Virginia it includes a small acreage in the hemlock type.

Spruce.—Forests in which 50 percent or more of the stand is spruce.

Loblolly-shortleaf pine.—Forests in which 50 percent or more of the stand is loblolly pine, shortleaf pine, or other southern yellow pines, singly or in combination.

Oak-pine.—Forests in which 50 percent or more of the stand is hardwood, usually upland oaks, but in which southern pines make up 25-49 percent of the stand.

Oak-hickory.—Forests in which 50 percent or more of the stand is upland oaks or hickory, singly or in combination, except where pines comprise 25-49 percent, in which case the stand would be classified oak-pine. In West Virginia, it includes a considerable acreage of the cove-hardwood forest type (yellow-poplar and/or its associates).

Oak-gum.—Bottomland forests in which 50 percent or more of the stand is blackgum, sweetgum, or oaks, singly or in combination, except where pines comprise 25-49 percent, in which case the stand would be classified as oak-pine.

Elm-ash-cottonwood.—Forests in which 50 percent or more of the stand is elm, ash, cottonwood, or red maple, singly or in combination. In West Virginia, it includes a small acreage of the aspen-birch forest type.

Maple-beech-birch.—Forests in which 50 percent or more of the stand is sugar maple, beech, or yellow birch, singly or in combination.

Class of Timber

Sawtimber trees.—Trees of commercial species that: (a) are of the following minimum diameters at breast height—softwoods 9.0 inches and hardwoods 11.0 inches; and (b) contain at least one merchantable sawlog. (A merchantable sawlog is a portion of a live tree that meets the minimum log-grade specifications, as defined under log-grade classification. The sawlog portion is that part of the tree between the stump and the top of the last merchantable sawlog.)

Poletimber trees.—Trees of commercial species that meet regional specifications of soundness and form, and are of the following diameters at breast height; softwoods 5.0 to 9.0 inches; hardwoods 5.0 to 11.0 inches. Such trees will usually become sawtimber trees if left to grow.

Seedling-and-sapling trees.—Trees of commercial species less than 5.0 inches in diameter at breast height and of good form and vigor.

Cull trees.—Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect or rot, or because they are of noncommercial species.

Log Grades

The standard log grades for hardwoods, white pine, and yellow pines used in the resurvey of West Virginia are outlined in figures 13 to 16.

Annual Growth and Cut

Net annual growth of sawtimber.—The annual change (resulting from natural causes) in net board-foot volume of live sawtimber on commercial

forest land during the period between surveys.

Ingrowth of sawtimber.—The net board-foot volume of trees that first became sawtimber trees during the inventory year as measured at the end of the year.

Annual mortality of sawtimber.—The net board-foot volume removed

HARDWOOD STANDARD-LUMBER LOGS

*Grade Factors**		*Specifications*							
		Log grade 1			*Log grade 2*				*Log grade 3*
Position in tree		Butts only	Butts & uppers		Butts & uppers				Butts & uppers
Minimum diameter (inches)		[1] 13-15	16-19	20+	[2] 11	12+			8+
Minimum length (feet)		10+	10+	10+	10+	8-9	10-11	12+	8+
Clear** cuttings on each of the 3 best faces	Min. length (feet)	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	—
	Min. yield face length	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Max. sweep and crook allowance; % of gross vol.		15			30				50
Max. cull and sweep allowance; % of gross vol.		[3] 40			[4] 50				50

*End defects, although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in U.S. Forest Prod. Lab. Rpt. D1737.

**A clear cutting is a portion of a face free of defects, extending the width of the face. A face is one-fourth the surface of the log as divided lengthwise.

[1] Ash and basswood butts can be 12 inches if otherwise meeting the requirements for small No. 1's.

[2] 10-inch logs of all species can be No. 2 if otherwise meeting the requirements for small No. 1's.

[3] Otherwise No. 1 logs with 41-50 percent cull can be No. 2.

[4] Otherwise No. 2 logs with 51-60 percent cull can be No. 3.

Figure 13.—The specifications used in the forest survey of West Virginia for hardwood standard-lumber logs, based on U.S. Forest Products Laboratory studies.

yearly from live sawtimber on commercial forest land through death from natural causes.

Annual cut of live sawtimber.—The net board-foot volume of live sawtimber trees cut or killed in logging, land-clearing, or cultural operations on commercial forest land during a year.

Net annual growth of growing stock.—The annual change (resulting from natural causes) in net cubic-foot volume of live sawtimber and poletimber trees on commercial forest land.

HARDWOOD TIE-AND-TIMBER LOGS

Grade Factors		*Specifications*
Position in tree		Butts and uppers
Scaling diameter (inches)		8+
Length, without trim (feet)		8+
Clear cuttings		No requirements. Not graded on cutting basis.
Max. sweep allowance		One-fourth d.i.b. of small end for half logs, and one-half d.i.b. for logs 16 feet long.
Sound surface defects permitted	Single knots	Any number, if none has an average collar* diameter that is more than one-third of log diameter at point of occurrence.
	Whorled knots	Any number, provided the sum of the collar diameters does not exceed one-third the log diameter at point of occurrence.
	Holes	Any number not exceeding knot specifications if they do not extend more than 3 inches into the contained tie or timber.
Unsound** surface defects permitted		Any number and size if they do not extend into contained tie or timber. If they extend into contained tie or timber, they shall not exceed size, number, and depth of limits for sound defects.

*Knot collar is the average of the vertical and horizontal diameters of the limb or knot swelling as measured flush with the surface of the log.

**Interior defects are not visible in standing trees. They are considered in grading cut logs. No interior defects are permitted except one shake not more than one-third the width of the contained tie or timber, and one split not more than 5 inches long.

Figure 14.—The timber-grading specifications used for hardwood tie and construction timber.

WHITE PINE AND RED PINE LOGS

Grade	*D.i.b. small end (inches)*	*Length w/o trim (feet)*	*Total* deduction permitted*	*Surface requirements*
1	13+	8+	None	Surface clear 100%.
	13-16	12-16	25%	Must be 2/3 surface clear in lengths 8′ long or longer; or 50% surface clear full length.
	17+	10-16	30%	Must be 1/2 surface clear in lengths 8′ long or longer; or 25% surface clear full length.
2				All knots for Grade 2 logs must be sound and tight.
	9-16	10+	30%	Knots not over 2.5″ in diameter. Larger knots permitted only if 50% full length surface with knots not larger than 2.0″ in diameter.
	17+	8+	40%	Knots not over 3.0″ in diameter. Larger knots permitted only if 50% full length surface with knots not larger than 2.5″ in diameter.
3	6-7	8+	25%	Sound knots not over 1″ in diameter; or live knots not over 2.0″ in diameter.
	8-13	8+	30%	No surface requirements, except logs with knots 4″ or more in diameter in whorls less than 2′ apart will not be accepted unless 25% or more full length surface with sound knots not over 2″ in diameter.
	14+	8+	40%	No surface requirements, except that knots over 6″ in diameter cannot be closer than 3′ apart.

*Total deduction includes sweep, rot, and other cull.

Figure 15.—The timber-grading specifications used in the forest survey of West Virginia for white pine and red pine lumber logs.

Ingrowth of growing stock.—The total net cubic-foot volume of trees that first become a part of growing stock during the inventory year as measured at the end of the year.

Annual mortality of growing stock.—The net cubic-foot volume removed from growing stock during a year through death from natural causes.

Annual cut of growing stock.—The net cubic-foot volume of live sawtimber and poletimber trees cut or killed in logging, land-clearing, or cultural operations on commercial forest land during a year.

YELLOW PINE LOGS

Grade	*Diameter (in inches, inside bark)*	*Length (feet)*	*Surface requirements*
1	10-16	8+	Surface clear (not considering adventitious knots or branches).
	16+	8+	Not more than three 2- to 4-inch knots and any number of smaller knots.
2	8-9	8+	Surface clear.
	10-13	8+	Any number of small knots (less than 2 inches in diameter).
	14+	8+	Not more than six 2- to 4-inch knots and any number of smaller knots.
3	6-7	8+	Any number of small knots not exceeding 1-inch in diameter.
	8-13	8+	Not more than six 2- to 4-inch knots and any number of smaller knots.
	14+	8+	More than six 2- to 4-inch knots. Any log with one or more knots 5 inches or larger.
	Knotty or crooked merchantable logs 8 inches d.i.b. or larger and 10 feet in length or longer that do not fall in either Grade 1 or Grade 2.		

Figure 16.—The grade standards used for yellow pine logs in the forest survey of West Virginia.

FOREST-SURVEY METHODS

Our estimates of forest area and timber volumes are based upon information obtained from two sets of aerial photographs (10 or more years between the two) and sample photo and ground plots. Photo plots were pin-pointed on each set of aerial photographs so they were distributed uniformly over the entire State. Each photo plot was classified as either forest or nonforest, and each forest plot was classified into sampling strata. These strata were stand-size classes on the initial survey and were cubic-foot-volume-per-acre classes on the resurvey.

Field crews on the first survey inspected on the ground many sample plots selected from the photo plots. Area, volume, and growth data were recorded. This set of data was the basis for the report *Forest Statistics for West Virginia,* which was published in 1952.

A sample of 346 of the initial ground plots were visited on the resurvey. Plot centers were relocated and trees were retallied. The two tallies were reconciled with each other on the plot.

The data for all plots on the initial survey and both sets of data for the remeasured plots were used in an electronic computer to obtain the first part of a combined estimate of current forest area and timber volume, and estimates of net annual growth, mortality, and timber cut. Regression equations calculated from the remeasured plots brought up to date the volume estimates of the first survey.

In addition to the remeasured plots, 1,201 new ground plots selected from photo plots on the most recent aerial photographs were established. They were selected at random within cubic-foot volume classes. The data for photo plots and ground plots based upon the most recent aerial photography were used by the electronic computer to obtain the second part of the combined estimates for area and volume.

These two sets of estimates were weighted by their variance reciprocals and combined within the computer. The printed output from the computer gave the combined estimate in acres for each forest area breakdown shown in the tables in this report. The associated sampling errors for these breakdowns were also printed. The combined estimates of timber volumes were produced in the same way.

Estimates of net annual growth, mortality, and timber cut were based entirely upon the 346 remeasured plots. The volume of timber on the plots at time of remeasurement (consisting of volume of live growing-stock trees plus volume of trees that were cut) minus the volume of timber on the plots (growing-stock trees only) at time of the first survey equals net volume growth for the years between measurements.

Stump measurements were used to estimate volumes of cut trees. Measurement of dead trees that were initially classified as live growing-stock trees provided the estimates of mortality.

These estimates for the period between surveys were converted to net annual growth, mortality, and timber cut by dividing by the number of years between measurements for each plot.

RELIABILITY OF THE ESTIMATES

The forest-area and timber-volume data presented in this report are based on a carefully designed sample of forest conditions throughout West Virginia. However, since neither every acre nor every tree in the State was measured, the figures in this report are at best estimates. A measure of the reliability of these estimates is given by a *sampling error.* Each estimate in this report had a computed sampling error. Included with the statistical tables are the corresponding sampling errors for row totals and column totals.

Briefly, here is how the sampling error indicates reliability. Our report of the total commercial forest area in West Virginia, 11,389,000 acres, has an associated sampling error of 0.7 percent (80,000 acres). This means that our best estimate of the commercial forest area in 1961 is 11,389,000 acres. And if there are no errors in procedure, the odds are 2 to 1 that, if we repeated the resurvey, the new estimate of commercial forest area would be between 11,309,000 and 11,469,000 acres (11,389,000 $\pm$ 80,000). Similarly, the odds are 19 to 1 that it would be within $\pm$ 160,000 acres of the present estimate, and 300 to 1 that it would be within $\pm$ 240,000 acres.

The computed sampling error is not a complete measure of reliability; there are other sources of error that this term does not include. There could be imperfections in our volume tables and errors in field measurement. Procedural errors were kept to a minimum by careful training of all personnel, frequent inspection of field work, and application of the most reliable survey methods.

Computed sampling errors for the totals shown in the statistical tables are:

	Sampling error (percent)
Commercial forest area (11,389,000 acres)	0.7
Growing-stock volume (11,060,725,000 cubic feet)	1.5
Sawtimber volume (28,779,503,000 board feet)	2.4
Net annual growth (370,288,000 cubic feet)	5.0
Annual timber cut (118,986,000 cubic feet)	18.0

SPECIES TALLIED

Only the commercial tree species[3] found on forest survey sample plots in West Virginia are listed below. Other species that are found in West Virginia are not included.

Softwoods

Shortleaf pine	*Pinus echinata*
Pitch pine	*Pinus rigida*
Virginia pine	*Pinus virginiana*

[3] Little, Elbert L. Jr. Check List of Native and Naturalized Trees of the United States (Including Alaska). U.S. Dept. Agr., Agr. Handbook 41, 472 pp., 1953.

Spruce:	
Red spruce	*Picea rubens*
Black spruce	*Picea mariana*
Eastern hemlock	*Tsuga canadensis*
Other eastern softwoods:	
Eastern white pine	*Pinus strobus*
Table-Mountain pine	*Pinus pungens*
Eastern redcedar	*Juniperus virginiana*

Hardwoods

Select white oaks:	
White oak	*Quercus alba*
Select red oaks:	
Northern red oak	*Quercus rubra*
Other white oaks:	
Chestnut oak	*Quercus prinus*
Other red oaks:	
Black oak	*Quercus velutina*
Scarlet oak	*Quercus coccinea*
Hickory	*Carya* species
Yellow birch	*Betula alleghaniensis*
Sweet birch	*Betula lenta*
Sugar maple	*Acer saccharum*
Red maple	*Acer rubrum*
American beech	*Fagus grandifolia*
Blackgum	*Nyssa sylvatica*
Ash	*Fraxinus* species
American basswood	*Tilia americana*
Yellow-poplar	*Liriodendron tulipifera*
Black cherry	*Prunus serotina*
Cucumbertree	*Magnolia acuminata*
Black walnut	*Juglans nigra*
Other eastern hardwoods:	
Silver maple	*Acer saccharinum*
Ohio buckeye	*Aesculus glabra*
Yellow buckeye	*Aesculus octandra*
River birch	*Betula nigra*
Hackberry	*Celtis occidentalis*
Honeylocust	*Gleditsia triacanthos*
Butternut	*Juglans cinerea*
Sweetgum	*Liquidambar styraciflua*
American sycamore	*Platanus occidentalis*
Bigtooth aspen	*Populus grandidentata*
Quaking aspen	*Populus tremuloides*
Black locust	*Robinia pseudoacacia*
Black willow	*Salix nigra*
Elm	*Ulmus* species

STATISTICAL DATA

Tables of statistical data for forest area, timber volume, annual growth, and cut for the entire State (National Standard Tables) and associated sampling errors for subtotals and totals appear first.

These are followed by a series of tables that give statistics for each of the four geographical sampling units. After these are tables of county statistics within each of the sampling units and combined statistics for counties in more than one sampling unit.

These county estimates have been prepared for users who wish statistics for a county or group of counties to meet their own particular needs. Estimated sampling errors for county totals are shown (but the actual errors may be larger or smaller). The users of these data are urged to evaluate the sampling error for each total in relation to their planning needs, use of the data, and decisions based upon these data.

County statistics were computed from means and variances of seven volume strata (stratified from aerial photographs) for the geographic unit. These were applied to the volume strata within each county, assuming homogeneous forest conditions throughout each stratum. If homogeneity does not exist, the actual errors of some county estimates may be greater than the calculated sampling errors.

Table 1. — *Land area of West Virginia, by classes of land, 1961*

Land class	Area	
	Acres	*Percent*
Commercial forest land	11,389,000	74
Unproductive forest land	34,000	([1])
Productive-reserved forest land	46,000	([1])
Total forest land	11,469,000	74
Nonforest land	[2] 3,942,000	26
All land	[3] 15,411,000	100

Note: Sampling errors for major breakdowns of area are given in table 10.

[1] Less than 1 percent.

[2] Includes 68,000 acres of water according to survey standards of area classification but defined by the Bureau of the Census as land.

[3] From U. S. Bureau of the Census, Land and Water Areas of the United States, 1960.

Table 2. — *Area of commercial forest land in West Virginia, by ownership classes, 1961*

Ownership class	Area	
	Acres	*Percent*
National forest	[1] 869,000	8
Miscellaneous Federal	14,000	([2])
State	144,000	1
County and municipal	9,000	([2])
Forest industry:		
Pulp and paper	172,000	2
Lumber	342,000	3
Other	16,000	([2])
Total forest industry	530,000	5
Farmer-owned	2,821,000	25
Miscellaneous private	7,002,000	61
All ownerships	11,389,000	100

[1] Includes 774,589 acres of commercial forest land in the Monongahela National Forest and 94,422 acres of commercial forest land in the George Washington National Forest.
[2] Less than 1 percent.

Table 3. — *Area of commercial forest land in West Virginia, by stand-size and ownership classes, 1961*
(In thousands of acres)

Stand-size class	All ownerships	National forest	Other public	Forest industry	Farmer and misc. private
Sawtimber stands	5,605	534	72	301	4,698
Poletimber stands	3,105	312	50	169	2,574
Sapling-and-seedling stands	2,445	23	25	55	2,342
Nonstocked areas	234	0	20	5	209
All classes	11,389	869	167	530	9,823

Table 4. — *Area of commercial forest land in West Virginia, by stand-volume classes for sawtimber and other stand-size classes, 1961*
(In thousands of acres)

Stand volumes per acre (board feet[1])	Area by stand-size classes		
	All stands	Sawtimber stands	Other stands
Less than 1,500	5,007	383	4,624
1,500 to 5,000	4,561	3,401	1,160
More than 5,000	1,821	1,821	0
All classes	11,389	5,605	5,784

[1] Net volume, International ¼-inch rule.

Table 5. — *Area of commercial forest land in West Virginia, by stocking classes based on alternative stand components, 1961*
(In thousands of acres)

Stocking class (percent)	Stocking classified in terms of —		
	All trees	Growing-stock trees	Desirable trees
90 to 100	9,713	2,075	202
80 to 90	694	2,825	546
70 to 80	407	2,336	885
60 to 70	290	1,337	1,038
50 to 60	96	1,238	1,653
40 to 50	63	705	1,536
30 to 40	48	379	1,603
20 to 30	18	179	1,588
10 to 20	15	81	1,521
Less than 10	45	234	817
All areas	11,389	11,389	11,389

Table 6. — *Area of commercial forest land in West Virginia, by stocking classes of growing-stock trees and stand-size classes, 1961*
(In thousands of acres)

Stocking class (percent)	All stands	Sawtimber stands	Poletimber stands	Sapling-and-seedling stands	Non-stocked stands
70 or more	7,236	4,001	2,156	1,079	—
40 to 70	3,280	1,467	711	1,102	—
10 to 40	639	137	238	264	—
Less than 10	234	—	—	—	234
All classes	11,389	5,605	3,105	2,445	234

Table 7. — *Area of commercial forest land in West Virginia, by area-condition and ownership classes, 1961*
(In thousands of acres)

Area-condition class	All ownerships	National forest	Other public	Forest industry	Farmer and misc. private
1	1,633	103	18	66	1,446
2	681	137	7	0	537
3	3,546	216	27	151	3,152
4	2,231	113	55	221	1,842
5	3,298	300	60	92	2,846
All classes	11,389	869	167	530	9,823

Table 8. — *Area of commercial forest land in West Virginia, by growth-per-acre and ownership classes, 1961*
(In thousands of acres)

Growth-per-acre class (cubic feet)	All ownerships	National forest	Other public	Forest industry	Farmer and misc. private
120 or more	169	113	12	([1])	44
85 to 120	647	438	12	26	171
50 to 85	1,965	290	31	336	1,308
Less than 50	8,608	28	112	168	8,300
All classes	11,389	869	167	530	9,823

[1] The small acreage of forest-industry land in the growth-per-acre classes of more than 85 cubic feet is due partly to the small number of remeasured sample plots in this ownership class. The actual acreage is probably greater than shown.

Table 9. — *Area of commercial forest land in West Virginia, by forest types and ownership classes, 1961*
(In thousands of acres)

Forest type	All ownerships	Public ownerships	Private ownerships
White pine	89	16	73
Spruce	27	27	0
Loblolly-shortleaf pine	584	52	532
Oak-pine	115	0	115
Oak-hickory[1]	7,477	411	7,066
Oak-gum	148	3	145
Elm-ash-cottonwood[2]	611	15	596
Maple-beech-birch	2,338	512	1,826
All types	11,389	1,036	10,353

[1] Includes the yellow-poplar forest type.
[2] Includes a small acreage of the aspen-birch forest type.

Table 10. — *Sampling errors for major area breakdowns in West Virginia, 1961*

Table No.	Area breakdown classification	Sampling error
		Percent
1.	Forest land area:	
	Commercial	1
	Unproductive	9
	Total	1
2.	Ownership[1]:	
	Pulp and paper industry	23
	Lumber industry	16
	Other forest industry	79
	Total forest industry	13
	Farmer-owned	5
	Miscellaneous private	2
	Farmer and misc. private	1
3.	Stand-size class:	
	Sawtimber	2
	Poletimber	4
	Sapling and Seedling	5
	Nonstocked	57
4.	Stand-volumes per acre:	
	Less than 1,500 board feet	3
	1,500 to 5,000 board feet	3
	More than 5,000 board feet	5
6.	Stocking class:	
	70 percent or more	2
	40 to 70 percent	6
	10 to 40 percent	19
	Less than 10 percent	46
7.	Area-condition class:	
	1	4
	2	8
	3	4
	4	9
	5	7
8.	Growth-per-acre class:	
	120 cubic feet or more	31
	85 to 120 cubic feet	20
	50 to 85 cubic feet	14
	Less than 50 cubic feet	3
9.	Forest types:	
	White pine	21
	Spruce	31
	Loblolly-shortleaf pine	12
	Oak-pine	28
	Oak-hickory	2
	Oak-gum	36
	Elm-ash-cottonwood	12
	Maple-beech-birch	5

[1] No sampling errors are shown for public ownership because acreages were obtained from public records.

Table 11. — *Number of growing-stock trees on commercial forest land in West Virginia, by diameter classes and by softwoods and hardwoods, 1961*

D.b.h. class (inches)	All species		Softwoods	Hardwoods
	Sampling error	Number of trees		
	Percent	*Thousands*	*Thousands*	*Thousands*
1.0 - 2.9	2	1,384,847	123,142	1,261,705
3.0 - 4.9	2	792,729	63,160	729,569
5.0 - 6.9	3	455,176	32,975	422,201
7.0 - 8.9	3	230,304	18,393	211,911
9.0 - 10.9	3	137,000	11,483	125,517
11.0 - 12.9	3	79,449	5,313	74,136
13.0 - 14.9	3	49,898	2,265	47,633
15.0 - 16.9	4	28,038	1,358	26,680
17.0 - 18.9	4	17,434	708	16,726
19.0 - 28.9	4	19,873	419	19,454
29.0 - 38.9	11	816	10	806
39.0 and larger	39	54	0	54
All classes	2	3,195,618	259,226	2,936,392

Table 12.—*Number of cull trees on commercial forest land in West Virginia, by diameter groups and by softwoods and hardwoods, 1961*

D.b.h. class (inches)	Number of cull trees
	Thousands
Softwoods:	
5.0 - 8.9	5,546
9.0 - 18.9	2,974
19.0 and larger	753
Total	9,273
Hardwoods:	
5.0 - 10.9	63,034
11.0 - 18.9	36,696
19.0 and larger	10,015
Total	109,745
All species	119,018

Table 13. — *Volume of timber on commercial forest land in West Virginia, by class of timber and by softwoods and hardwoods, 1961*
(In millions of cubic feet)

Class of timber*	All species	Softwoods	Hardwoods
Sawtimber trees:			
Sawlog portion	6,199	329	5,870
Upper-stem portion	434	38	396
Total	6,633	367	6,266
Poletimber trees	4,428	199	4,229
All growing-stock trees	11,061	566	10,495
Sound cull trees:			
Sawtimber size	182	13	169
Poletimber size	61	3	58
Total	243	16	227
Rotten cull trees:			
Sawtimber size	521	3	518
Poletimber size	179	1	178
Total	700	4	696
Total, all timber	12,004	586	11,418

* The item "salvable trees" is not included here because there is only negligible volume of this class of timber in West Virginia.

Table 14. — *Volume of growing stock and sawtimber on commercial forest land in West Virginia, by ownership classes and by softwoods and hardwoods, 1961*

Ownership class	Growing stock, million cubic feet			Sawtimber, million board feet[1]		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
National forest	1,215	136	1,079	2,893	442	2,451
Other public	442	32	410	1,074	116	958
Forest industry	633	22	611	1,620	58	1,562
Farmer and misc. private	8,771	376	8,395	23,192	980	22,212
All ownerships	11,061	566	10,495	28,779	1,596	27,183

[1] International ¼-inch rule.

Table 15. — *Volume of growing stock and sawtimber on commercial forest land in West Virginia, by stand-size classes and by softwoods and hardwoods, 1961*

Stand-size class	Growing stock, million cubic feet			Sawtimber, million board feet[1]		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
Sawtimber stands	7,656	342	7,314	24,081	1,158	22,923
Poletimber stands	2,761	166	2,595	3,617	351	3,266
Sapling-and-seedling stands	572	52	520	1,081	87	994
Nonstocked areas	72	6	66	0	0	0
Total	11,061	566	10,495	28,779	1,596	27,183

[1] International ¼-inch rule.

Table 16. — *Volume of growing stock on commercial forest land in West Virginia, by species and diameter classes, 1961*
(In millions of cubic feet)

Species	Diameter class (inches at breast height)										
	All classes	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Shortleaf pine	63	15	17	10	9	6	3	1	2	—	—
Pitch and Virginia pines	234	34	46	45	48	28	19	6	8	—	—
Spruce	67	11	12	13	12	9	7	3	—	—	—
Hemlock	125	22	18	10	13	13	14	17	16	2	—
White pine[1]	77	11	13	13	11	9	8	7	5	—	—
Total softwoods	566	93	106	91	93	65	51	34	31	2	—
Select white oaks	935	119	122	129	153	130	73	63	128	14	4
Select red oaks	1,265	152	159	164	157	157	129	104	216	25	2
Other white oaks	1,161	156	155	158	172	132	100	84	175	22	7
Other red oaks	1,076	77	91	97	163	152	153	119	212	12	—
Hickory	1,007	147	157	151	158	120	89	68	108	9	—
Yellow birch	168	36	27	21	14	13	12	10	31	3	1
Sweet birch	194	26	30	28	25	21	20	13	29	2	—
Sugar maple	596	115	90	75	58	49	43	38	118	9	1
Red maple	568	126	114	101	59	48	36	25	52	7	—
Beech	653	55	67	83	91	92	73	58	123	11	—
Blackgum	173	8	10	16	24	24	23	23	45	—	—
Ash	229	44	39	36	31	26	21	12	20	—	—
Basswood	331	28	46	46	50	45	33	27	56	—	—
Yellow-poplar	1,040	111	127	159	168	152	137	83	99	4	—
Black cherry	277	27	35	47	61	37	30	17	23	—	—

Cucumbertree	127	10	15	18	23	19	19	11	12	—	—
Black walnut	99	13	12	16	11	12	12	9	13	1	—
Other hardwoods	596	140	114	84	77	62	37	26	55	1	—
Total hardwoods	10,495	1,390	1,410	1,429	1,495	1,291	1,040	790	1,515	120	15
All species	11,061	1,483	1,516	1,520	1,588	1,356	1,091	824	1,546	122	15

[1] Includes about 4 million cubic feet of other softwood species.

Table 17. — *Volume of sawtimber on commercial forest land in West Virginia, by species and diameter classes, 1961*
(In millions of board feet)[1]

Species	Diameter class (inches at breast height)								
	All classes	9.0-[2]10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Shortleaf pine	120	36	33	23	13	6	9	—	—
Pitch and Virginia pines	677	219	191	121	80	28	38	—	—
Spruce	191	62	46	38	31	13	1	—	—
Hemlock	385	47	50	59	63	78	81	7	—
White pine[3]	223	49	45	36	37	33	23	—	—
Total softwoods	1,596	413	365	277	224	158	152	7	—
Select white oaks	2,439	—	543	537	327	295	633	80	24
Select red oaks	3,502	—	560	646	588	503	1,072	123	10
Other white oaks	3,008	—	609	539	440	397	875	110	38
Other red oaks	3,604	—	590	625	675	558	1,089	67	—
Hickory	2,354	—	564	497	404	317	524	48	—
Yellow birch	365	—	48	53	54	44	149	14	3
Sweet birch	464	—	91	85	90	55	135	8	—
Sugar maple	1,423	—	210	204	192	177	580	53	7

CONTINUED

Table 17 — *continued*

Species	All classes	Diameter class (inches at breast height) 9.0-[2]10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Red maple	955	—	213	192	159	114	244	33	—
Beech	1,932	—	315	376	314	271	600	56	—
Blackgum	591	—	81	92	97	108	213	—	—
Ash	462	—	114	107	93	52	96	—	—
Basswood	907	—	180	184	147	125	271	—	—
Yellow-poplar	2,796	—	609	645	622	398	495	27	—
Black cherry	693	—	220	150	130	77	116	—	—
Cucumbertree	353	—	81	81	86	47	58	—	—
Black walnut	246	—	40	50	53	35	59	9	—
Other hardwoods	1,089	—	272	257	175	118	259	8	—
Total hardwoods	27,183	—	5,340	5,320	4,646	3,691	7,468	636	82
All species	28,779	413	5,705	5,597	4,870	3,849	7,620	643	82

[1] International ¼-inch rule.
[2] Softwoods only.
[3] Includes about 7 million board feet of other softwood species.

Table 18. — *Volume of sawtimber on commercial forest land in West Virginia, by species and quality classes, 1961*
(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			Tie-and-timber logs[2]
		Grade 1	Grade 2	Grade 3	
Softwoods:					
Yellow pines	797	123	190	484	—
White pine	215	50	69	96	—
Other softwoods[3]	584	—	—	—	—
Total	1,596	173	259	580	—
Hardwoods:					
Select red and white oaks	5,941	701	1,242	2,570	1,428
Other red and white oaks	6,612	831	1,426	2,493	1,862
Hickory	2,354	174	485	1,041	654
Yellow birch	365	31	83	206	45
Sugar maple	1,423	87	227	683	426
Ash, walnut and cherry	1,401	163	356	733	149
Yellow-poplar	2,796	398	454	1,200	744
Other hardwoods	6,291	476	1,105	3,246	1,464
Total	27,183	2,861	5,378	12,172	6,772
All species	28,779	3,034	5,637	12,752	6,772

[1] International ¼-inch rule.
[2] Meet minimum specifications for hardwood tie-and-timber logs but not for standard lumber logs; not applicable to softwoods.
[3] Spruce, hemlock, and miscellaneous softwoods were not graded into standard-lumber logs.

Table 19. — *Sampling errors for major timber-volume breakdowns in West Virginia, 1961*

Table No.	Volume breakdown classification	Sampling error
		Percent
13.	Class of timber (cubic feet):	
	Softwood growing stock	7
	Hardwood growing stock	2
	Sawtimber trees	2
	Poletimber trees	2
	All growing stock	2
	Sound cull trees	7
	Rotten cull trees	4
	All live trees	1
14.	Ownership:	
	Growing stock (cubic feet)	
	National forest	2
	Other public	17
	Forest industry	15
	Farmer and misc. private	2
	Sawtimber (board feet)	
	National forest	4
	Other public	21
	Forest industry	17
	Farmer and misc. private	3
	Softwood sawtimber	9
	Hardwood sawtimber	3
	All sawtimber	2
15.	Stand size:	
	Growing stock (cubic feet)	
	Sawtimber stands	3
	Poletimber stands	4
	Sapling-and-seedling stands	3
	Nonstocked areas	4
	Sawtimber (board feet)	
	Sawtimber stands	3
	Poletimber stands	5
	Sapling-and-seedling stands	13
	Nonstocked areas	—

Table No.	Volume breakdown classification	Sampling error: Cubic feet	Sampling error: Board feet
		Percent	
16-17.	Species:		
	Shortleaf pine	6	15
	Pitch and Virginia pines	11	11
	Spruce	12	15
	Hemlock	15	16
	White pine	43	45
	Select white oaks	5	7
	Select red oaks	4	5
	Other white oaks	4	6
	Other red oaks	6	7
	Hickory	5	7
	Yellow birch	8	8
	Sweet birch	10	10
	Sugar maple	6	8
	Red maple	6	9
	Beech	7	8
	Blackgum	7	10
	Ash	7	9
	Basswood	8	9
	Yellow-poplar	6	8
	Black cherry	12	17
	Cucumbertree	9	11
	Black walnut	9	16
	Other hardwoods	6	13
16-17.	Diameter class (inches):		
	5.0- 6.9	2	*
	7.0- 8.9	2	*
	[1]9.0-10.9	2	9
	11.0-12.9	3	3
	13.0-14.9	3	3
	15.0-16.9	4	4
	17.0-18.9	4	4
	19.0-28.0	4	4
	29.0-38.9	11	11
	39.0 and larger	38	38

* No volume in this classification.

[1] Board-foot sampling error for this class is for softwoods only.

Table 20. — *Components of net annual growth of growing stock and sawtimber on commercial forest land in West Virginia, by species group, 1960*

Components	All species	Softwoods	Hardwoods
GROWING STOCK			
Thousands of cubic feet			
Growth on initial growing stock[1]	214,239	16,187	198,052
Ingrowth — saplings that became poletimber	199,940	19,397	180,543
Gross growth	414,179	35,584	378,595
Annual mortality	43,891	8,122	35,769
Net annual growth	370,288	27,462	342,826
SAWTIMBER			
Thousands of board feet[2]			
Growth on initial sawtimber inventory[1]	577,258	70,224	507,034
Ingrowth — poletimber trees that became sawtimber	561,707	33,261	528,446
Gross growth	1,138,965	103,485	1,035,480
Annual mortality	97,669	25,979	71,690
Net annual growth	1,041,296	77,506	963,790

[1] Includes growth on trees that were cut.
[2] International ¼-inch rule.

Table 21. — *Net annual growth and annual cut of growing stock on commercial forest land in West Virginia, by species, 1960*
(In thousands of cubic feet)

Species	Net annual growth	Annual timber cut[1]
Softwoods:		
Yellow pines	15,011	2,022
White pine	3,307	3,075
Spruce	3,021	203
Hemlock	5,946	3,971
Other softwoods	177	0
Total	27,462	9,271
Hardwoods:		
Select red and white oaks	75,774	22,644
Other red and white oaks	62,015	30,520
Hickory	20,874	7,978
Yellow birch	5,550	345
Sugar maple	11,679	5,140
Sweetgum	249	1,254
Ash, black walnut, black cherry	25,667	2,524
Yellow-poplar	46,424	20,497
Other hardwoods	94,594	18,813
Total	342,826	109,715
All species	370,288	118,986

[1] Annual cut is based on trend level between 1947 and 1960 as developed from the remeasurement of permanent sample plots.

Table 22. — *Net annual growth and annual cut of growing stock on commercial forest land in West Virginia, by ownership classes and by softwoods and hardwoods, 1960*

(In thousands of cubic feet)

Ownership class	Net annual growth			Annual timber cut		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
National forest	37,694	3,589	34,105	5,957	1,288	4,669
Other public	14,658	1,319	13,339	10,132	654	9,478
Forest industry	19,628	1,081	18,547	1,088	98	990
Farmer and misc. private	298,308	21,473	276,835	101,809	7,231	94,578
All ownerships	370,288	27,462	342,826	118,986	9,271	109,715

Table 23. — *Net annual growth and annual cut of sawtimber on commercial forest land in West Virginia, by species, 1960*
(In thousands of board feet)[1]

Species	Net annual growth	Annual timber cut[2]
Softwoods:		
Yellow pines	38,833	5,755
White pine	10,774	13,425
Spruce	9,032	767
Hemlock	18,509	14,650
Other softwoods	358	0
Total	77,506	34,597
Hardwoods:		
Select red and white oaks	228,530	83,247
Other red and white oaks	176,446	110,108
Hickory	54,228	28,075
Yellow birch	12,793	1,365
Sugar maple	31,148	18,902
Sweetgum	869	5,070
Ash, black walnut, black cherry	55,565	8,134
Yellow-poplar	124,742	77,284
Other hardwoods	279,469	66,546
Total	963,790	398,731
All species	1,041,296	433,328

[1] International ¼-inch rule.
[2] Annual cut is based on trend level between 1947 and 1960 as developed from the remeasurement of permanent sample plots.

Table 24. — *Net annual growth and annual cut of sawtimber on commercial forest land in West Virginia, by ownership classes and by softwoods and hardwoods, 1960*

(In thousands of board feet)[1]

Ownership class	Net annual growth			Annual cut		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
National forest	101,896	14,964	86,932	22,201	4,732	17,469
Other public	41,851	5,686	36,165	32,172	2,463	29,709
Forest industry	59,082	2,939	56,143	3,432	328	3,104
Farmer and misc. private	838,467	53,917	784,550	375,523	27,074	348,449
All ownerships	1,041,296	77,506	963,790	433,328	34,597	398,731

[1] International ¼-inch rule.

Table 25. — *Annual mortality of growing stock and sawtimber on commercial forest land in West Virginia, by species, 1960*

Species	Growing stock	Sawtimber
	Thousand cubic feet	*Thousand board feet*[1]
Softwoods:		
Yellow pines	4,341	17,253
White pine	2,002	5,009
Spruce	1,176	960
Hemlock	545	2,637
Other softwoods	58	120
Total	8,122	25,979
Hardwoods:		
Select red and white oaks	6,705	12,819
Other red and white oaks	3,699	7,910
Hickory	3,179	5,006
Yellow birch	939	2,527
Sugar maple	644	1,212
Sweetgum	22	70
Ash, black walnut, black cherry	1,685	874
Yellow-poplar	2,988	10,684
Other hardwoods	15,908	30,588
Total	35,769	71,690
All species	43,891	97,669

[1] International ¼-inch rule.

Table 26. — *Annual mortality of growing stock and sawtimber on commercial forest land in West Virginia, by ownership classes and by softwoods and hardwoods, 1960*

Ownership	Growing stock Thousand cubic feet			Sawtimber Thousand board feet[1]		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
National forest	4,684	1,036	3,648	8,087	1,759	6,328
Other public	2,355	474	1,881	7,340	1,540	5,800
Forest industry	2,459	467	1,992	7,750	1,200	6,550
Farmer and misc. private	34,393	6,145	28,248	74,492	21,480	53,012
All ownerships	43,891	8,122	35,769	97,669	25,979	71,690

[1] International ¼-inch rule.

Table 27. — *Annual mortality of growing stock and sawtimber on commercial forest land in West Virginia, by causes and by softwoods and hardwoods, 1960*

Cause of death	Growing stock Thousand cubic feet			Sawtimber Thousand board feet[1]		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
Fire	5,009	1,685	3,324	15,856	5,692	10,164
Insects	424	0	424	0	0	0
Diseases	25,689	4,206	21,483	56,665	14,206	42,459
Other	9,417	1,073	8,344	20,171	1,907	18,264
Unknown	3,352	1,158	2,194	4,977	4,174	803
All causes	43,891	8,122	35,769	97,669	25,979	71,690

[1] International ¼-inch rule.

Table 28. — *Total output of timber products, by products, by type of material used, and by softwoods and hardwoods, West Virginia, 1960*

Product and species group	Total output in standard units		Output from roundwood		Output from plant byproducts, standard units
	Unit	Number	Standard units	M cubic feet	
Sawlogs:					
Softwood	M board feet[1]	12,000	12,000	2,160	0
Hardwood	M board feet[1]	322,000	322,000	56,378	0
Total	M board feet[1]	334,000	334,000	58,538	0
Veneer logs and bolts:					
Softwood	M board feet	0	0	0	0
Hardwood	M board feet	2,299	2,299	414	0
Total	M board feet	2,299	2,299	414	0
Cooperage logs and bolts:					
Softwood	M board feet	0	0	0	0
Hardwood	M board feet	1,550	1,550	279	0
Total	M board feet	1,550	1,550	279	0
Pulpwood:					
Softwood	Standard cords[2]	87,150	87,150	6,972	0
Hardwood	Standard cords[2]	158,850	158,850	12,708	0
Total	Standard cords[2]	246,000	246,000	19,680	0
Piling:					
Softwood	M linear feet	0	0	0	0
Hardwood	M linear feet	34	34	20	0
Total	M linear feet	34	34	20	0

Poles:					
Softwood	M pieces	([3])	([3])	5	0
Hardwood	M pieces	5	5	60	0
Total	M pieces	5	5	65	0
Mine timbers (round):					
Softwood	M cubic feet	250	250	250	0
Hardwood	M cubic feet	7,200	7,200	7,200	0
Total	M cubic feet	7,450	7,450	7,450	0
Misc. industrial wood:[4]					
Softwood	M cubic feet	0	0	0	0
Hardwood	M cubic feet	13,788	6,001	6,001	7,787
Total	M cubic feet	13,788	6,001	6,001	7,787
Posts (round and split):					
Softwood	M pieces	0	0	0	0
Hardwood	M pieces	867	867	432	0
Total	M pieces	867	867	432	0
Fuelwood:					
Softwood	Standard cords	750	750	60	0
Hardwood	Standard cords	362,625	192,625	15,410	170,000
Total	Standard cords	363,375	193,375	15,470	170,000
All products:					
Softwood	M cubic feet	9,447	9,447	9,447	0
Hardwood	M cubic feet	120,289	98,902	98,902	21,387
Total	M cubic feet	129,736	108,349	108,349	21,387

[1] International ¼-inch rule.
[2] Rough wood basis (for example, chips converted to equivalent standard cords).
[3] Less than 500 pieces.
[4] Includes hewn ties, shingle bolts, turnery bolts, chemical wood, and the like.

Table 29. — *Total output of roundwood products, by source and by softwoods and hardwoods, West Virginia, 1960*
(In thousands of cubic feet)

Source	All species	Softwoods	Hardwoods
Growing-stock trees:[1]			
Sawtimber trees	86,179	7,559	78,620
Poletimber trees	15,824	1,198	14,626
Total	102,003	8,757	93,246
Cull trees[1]	2,295	11	2,284
Salvable dead trees[1]	2,972	17	2,955
Other sources[2]	1,079	662	417
All sources	108,349	9,447	98,902

[1] On commercial forest land.
[2] Includes noncommercial forest land, nonforest land such as fence rows, trees less than 5.0 inches in diameter, and tree tops and limbs.

Table 30. — *Annual timber cut from growing stock on commercial forest land in West Virginia, by products and logging residues and by softwoods and hardwoods, 1960*
(In thousands of cubic feet)

Products and residues	All species	Softwoods	Hardwoods
Roundwood products:			
Sawlogs	57,842	2,160	55,682
Veneer logs and bolts	414	0	414
Cooperage logs and bolts	279	0	279
Pulpwood	18,658	6,352	12,306
Piling	20	0	20
Poles	64	4	60
Mine timbers	7,185	213	6,972
Misc. industrial wood	5,919	0	5,919
Posts	418	0	418
Fuelwood	11,204	28	11,176
All products	102,003	8,757	93,246
Logging residues	16,983	514	16,469
Timber cut	118,986	9,271	109,715

Table 31. — *Annual timber cut from live sawtimber on commercial forest land in West Virginia, by products and logging residues, and by softwoods and hardwoods, 1960*

(In thousands of board feet)[1]

Products and residues	All species	Softwoods	Hardwoods
Roundwood products:			
Sawlogs	321,347	12,000	309,347
Veneer logs and bolts	2,299	0	2,299
Cooperage logs and bolts	1,550	0	1,550
Pulpwood	54,708	19,056	35,652
Piling	57	0	57
Poles	185	13	172
Mine timbers	20,839	639	20,200
Misc. industrial wood	7,252	0	7,252
Posts	1,212	0	1,212
Fuelwood	13,775	83	13,692
All products	423,224	31,791	391,433
Logging residues	10,104	2,806	7,298
Timber cut	433,328	34,597	398,731

[1] International ¼-inch rule.

Table 32. — *Volume of unused plant residues, by industrial source and type of residue, and by softwoods and hardwoods, West Virginia, 1960*
(In thousands of cubic feet)

Industrial source	Species and character of residues								
	All species			Softwoods			Hardwoods		
	Total	Coarse[1]	Fine[2]	Total	Coarse	Fine	Total	Coarse	Fine
Lumber industry	11,439	5,601	5,838	422	207	215	11,017	5,394	5,623
Veneer and plywood industry	14	6	8	0	0	0	14	6	8
Other primary industries	59	19	40	4	1	3	55	18	37
All industries	11,512	5,626	5,886	426	208	218	11,086	5,418	5,668

[1] Unused material suitable for chipping, such as slabs, edgings, and veneer cores.
[2] Unused material not suitable for chipping, such as sawdust and shavings.

Table 33. — *Timber growth projections for West Virginia, 1961 to 1991*[1]

Period	Assumed cut			Projected growth		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
			GROWING STOCK *Thousand cubic feet*			
1961*	118,986	9,271	109,715	370,288	27,462	342,826
1971	248,486	20,271	228,215	435,322	34,374	400,948
1981	377,986	31,271	346,715	487,474	40,179	447,295
1991	507,486	42,271	465,215	509,188	42,835	466,353
			SAWTIMBER *Thousand board feet*[2]			
1961*	433,328	34,597	398,731	1,041,296	77,506	963,790
1971	755,328	60,597	694,731	1,211,256	93,684	1,117,572
1981	1,077,328	86,597	990,731	1,348,860	107,253	1,241,607
1991	1,399,328	112,597	1,286,731	1,407,386	113,291	1,294,095

[1] Based upon the following assumptions, without modification: (a) that annual timber cut will approximately equal annual net growth in 30 years; (b) that timber cut will increase an equal amount each year for 30 years; and (c) that growth rates for 1960 by softwoods and hardwoods for growing stock and sawtimber will remain constant for each of the 30 years.

[2] International ¼-inch rule.

* Year of inventory.

Table 34. — *Sampling errors for major breakdowns of annual growth, cut, and mortality of growing stock and sawtimber in West Virginia, 1960*

Table No.	Breakdown classification	Sampling error
		Percent
21.	Growth in cubic feet:	
	Softwoods	30
	Hardwoods	5
	All species	5
	Cut in cubic feet:	
	Softwoods	47
	Hardwoods	18
	All species	18
22.	Growth in cubic feet:	
	National forest	7
	Other public	32
	Forest industry	37
	Farmer and misc. private	7
	Cut in cubic feet:	
	National forest	37
	Other public	47
	Forest industry	100
	Farmer and misc. private	20
23.	Growth in board feet:	
	Softwoods	46
	Hardwoods	7
	All species	7
	Cut in board feet:	
	Softwoods	55
	Hardwoods	21
	All species	20
24.	Growth in board feet:	
	National forest	10
	Other public	39
	Forest industry	45
	Farmer and misc. private	9
	Cut in board feet:	
	National forest	37
	Other public	53
	Forest industry	100
	Farmer and misc. private	23

Table No.	Breakdown classification	Sampling error: Cubic feet	Sampling error: Board feet
		Percent	
25.	Mortality by species group:		
	Softwoods	35	43
	Hardwoods	17	33
	All species	15	26
26.	Mortality by owner:		
	National forest	18	27
	Other public	50	100
	Forest industry	75	92
	Farmer and misc. private	18	31
27.	Mortality by cause:		
	Fire	60	67
	Insect	100	*
	Disease	21	38
	Other	19	31
	Unknown	39	82

* No volume fell into this classification.

Table 35. — *Land area of West Virginia, by classes of land and geographical sampling units, 1961*
(In thousands of acres)

Land class	National forest	North-eastern	Southern	North-western
Commercial forest land	869	3,373	4,063	3,084
Unproductive forest land	34	(1)	0	0
Productive-reserved forest land	1	31	8	6
Total forest land	904	3,404	4,071	3,090
Nonforest land	0	1,745	833	1,364
All land	904	5,149	4,904	4,454
Sampling errors, in percent				
Commercial forest land	0.3	1.7	1.2	1.9

[1] Less than 500 acres.

Table 36. — *Area of commercial forest land in West Virginia, by ownership classes and geographical sampling units, 1961*
(In thousands of acres)

Ownership class	National forest	North-eastern	Southern	North-western
National forest	869	—	—	—
Other Federal	—	(1)	7	7
State	—	79	33	32
County and municipal	—	(1)	3	6
Forest industry	—	275	178	77
Farmer-owned	—	1,119	578	1,124
Misc. private	—	1,900	3,264	1,838
All ownerships	869	3,373	4,063	3,084
Sampling errors, in percent				
All public ownerships[2]	—	—	—	—
Forest industry	—	18	24	35
Farmer-owned	—	8	13	8
Misc. private	—	5	3	5

[1] Less than 500 acres.
[2] Public ownership data were taken from records and therefore had no sampling errors.

Table 37. — *Area of commercial forest land in West Virginia, by stand-size classes and geographical sampling units, 1961*
(In thousands of acres)

Stand-size class	National forest	North-eastern	Southern	North-western
Sawtimber	534	1,604	2,028	1,439
Poletimber stands	312	957	1,123	713
Sapling-and-seedling stands	23	760	912	750
Nonstocked areas	0	52	0	182
All classes	869	3,373	4,063	3,084
Sampling errors, in percent				
Sawtimber stands	4	6	4	5
Poletimber stands	6	9	8	10
Sapling-and-seedling stands	28	10	9	9
Nonstocked areas	—	80	—	30

Table 38. — *Area of commercial forest land in West Virginia, by forest types and geographical sampling units, 1961*
(In thousands of acres)

Forest type	National forest	North-eastern	Southern	North-western
White pine	16	15	43	15
Spruce	27	0	0	0
Loblolly-shortleaf pine	43	163	79	299
Oak-pine	0	44	29	42
Oak-hickory	275	2,316	2,869	1,835
Oak-gum	0	76	58	14
Elm-ash-cottonwood	0	149	163	299
Maple-beech-birch	508	595	736	499
Yellow-poplar	0	15	86	81
All types	869	3,373	4,063	3,084
Sampling errors, in percent				
White pine	37	81	47	80
Spruce	26	—	—	—
Loblolly-shortleaf pine	21	24	37	20
Oak-pine	—	47	58	45
Oak-hickory	7	4	3	5
Oak-gum	—	36	41	49
Elm-ash-cottonwood	—	25	24	18
Maple-beech-birch	4	12	11	12
Yellow-poplar	—	81	41	57

Table 39. — *Volume of timber on commercial forest land in West Virginia, by class of timber and geographical sampling units, 1961*
(In millions of cubic feet)

Class of timber	National forest	North-eastern	Southern	North-western
Sawtimber trees:				
Sawlog portion	630	1,799	2,308	1,462
Upper-stem portion	50	125	160	99
Total	680	1,924	2,468	1,561
Poletimber trees	535	1,392	1,571	930
All growing-stock trees	1,215	3,316	4,039	2,491
Sound cull trees	90	46	68	39
Rotten cull trees	75	212	337	76
Total, all timber	1,380	3,574	4,444	2,606
Sampling errors, in percent				
Sawtimber trees	3	5	3	5
Poletimber trees	3	3	3	5
All growing-stock trees	2	3	2	4
Sound cull trees	6	16	13	30
Rotten cull trees	5	7	5	11

Table 40. — *Volume of growing stock on commercial forest land in West Virginia, by ownership, softwoods and hardwoods, and geographical sampling units, 1961*

(In millions of cubic feet)

Ownership and species group	National forest	North-eastern	Southern	North-western
National forest:				
Softwoods	136	—	—	—
Hardwoods	1,079	—	—	—
Total	1,215	—	—	—
Other public:				
Softwoods	—	8	14	10
Hardwoods	—	191	128	91
Total	—	199	142	101
Forest industry:				
Softwoods	—	2	6	14
Hardwoods	—	355	186	70
Total	—	357	192	84
Other private:				
Softwoods	—	160	123	93
Hardwoods	—	2,600	3,582	2,213
Total	—	2,760	3,705	2,306
All ownerships:				
Softwoods	136	170	143	117
Hardwoods	1,079	3,146	3,896	2,374
Total	1,215	3,316	4,039	2,491
Sampling errors, in percent				
Total line only, for:				
National forest	2	—	—	—
Other public	—	30	28	32
Forest industry	—	20	30	41
Other private	—	4	4	4
All softwoods	9	16	21	17
All hardwoods	3	4	3	4
All species	2	3	2	4

Table 41. — *Volume of sawtimber on commercial forest land in West Virginia, by ownership, softwoods and hardwoods, and geographical sampling units, 1961*

(In millions of board feet)

Ownership and species group	National forest	North-eastern	Southern	North-western
National forest:				
Softwoods	442	—	—	—
Hardwoods	2,451	—	—	—
Total	2,893	—	—	—
Other public:				
Softwoods	—	40	54	22
Hardwoods	—	455	298	205
Total	—	495	352	227
Forest industry:				
Softwoods	—	7	20	31
Hardwoods	—	864	534	164
Total	—	871	554	195
Other private:				
Softwoods	—	428	307	245
Hardwoods	—	6,571	9,528	6,113
Total	—	6,999	9,835	6,358
All ownerships:				
Softwoods	442	475	381	298
Hardwoods	2,451	7,890	10,360	6,482
Total	2,893	8,365	10,741	6,780
Sampling errors, in percent				
Total line only, for:				
National forest	3	—	—	—
Other public	—	36	32	37
Forest industry	—	22	33	47
Other private	—	6	4	6
All softwoods	10	18	22	20
All hardwoods	4	5	4	6
All species	3	5	4	5

Table 42. — *Volume of growing stock on commercial forest land in West Virginia, by stand-size classes, softwoods and hardwoods, and geographical sampling units, 1961*

(In millions of cubic feet)

Stand-size class and species group	National forest	North-eastern	Southern	North-western
Sawtimber stands:				
Softwoods	107	76	100	59
Hardwoods	821	2,113	2,666	1,714
Total	928	2,189	2,766	1,773
Poletimber stands:				
Softwoods	21	75	20	50
Hardwoods	249	871	924	551
Total	270	946	944	601
Other stands:				
Softwoods	8	19	23	8
Hardwoods	9	162	306	109
Total	17	181	329	117
All stands:				
Softwoods	136	170	143	117
Hardwoods	1,079	3,146	3,896	2,374
Total	1,215	3,316	4,039	2,491
Sampling errors, in percent				
Total line only, for:				
Sawtimber stands	4	6	4	6
Poletimber stands	3	8	7	8
Other stands	7	9	4	4
All stands	2	3	2	4

Table 43. — *Volume of sawtimber on commercial forest land in West Virginia, by stand-size classes, softwoods and hardwoods, and geographical sampling units, 1961*

(In millions of board feet)

Stand-size class and species group	National forest	North-eastern	Southern	North-western
Sawtimber stands:				
Softwoods	388	259	321	190
Hardwoods	2,213	6,713	8,724	5,273
Total	2,601	6,972	9,045	5,463
Poletimber stands:				
Softwoods	52	176	40	83
Hardwoods	236	992	1,326	712
Total	288	1,168	1,366	795
Other stands:				
Softwoods	2	40	20	25
Hardwoods	2	185	310	497
Total	4	225	330	522
All stands:				
Softwoods	442	475	381	298
Hardwoods	2,451	7,890	10,360	6,482
Total	2,893	8,365	10,741	6,780
Sampling errors, in percent				
Total line only, for:				
Sawtimber stands	4	6	5	7
Poletimber stands	7	9	10	11
Other stands	27	17	17	26
All stands	3	5	4	5

Table 44. — *Volume of growing stock on commercial forest land in West Virginia, in the National forest geographical sampling unit, by species and diameter classes, 1961*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height) 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Yellow pines	30	4	7	3	4	4	3	2	3	—	—
Spruce	54	9	9	10	10	7	6	3	—	—	—
Hemlock[1]	52	7	4	4	6	6	6	6	13	—	—
Total softwoods	136	20	20	17	20	17	15	11	16	—	—
White oak	44	8	6	5	8	6	4	2	5	—	—
Northern red oak	132	12	17	18	17	15	14	11	26	2	—
Chestnut oak	109	17	16	15	14	11	10	9	16	1	—
Other red oaks	35	5	5	4	4	4	3	4	6	—	—
Hickory	40	6	6	7	7	4	3	2	5	—	—
Yellow birch	84	26	16	9	6	5	4	3	12	2	1
Sweet birch	44	14	11	7	2	3	3	2	2	—	—
Sugar maple	90	13	12	12	10	9	8	8	15	2	1
Red maple	91	23	21	18	6	4	4	6	9	—	—
Beech	126	11	13	18	21	18	18	16	11	—	—
Basswood	33	4	7	5	4	4	4	1	4	—	—
Yellow-poplar	60	2	4	9	15	12	11	3	4	—	—
Black cherry	98	8	15	21	17	13	11	7	6	—	—
Cucumbertree	24	2	3	4	4	4	3	2	2	—	—
Other hardwoods	69	12	14	14	10	7	5	3	4	—	—
Total hardwoods	1,079	163	166	166	145	119	105	79	127	7	2
All species	1,215	183	186	183	165	136	120	90	143	7	2

[1] Includes about 10 percent of other softwoods.

Note: Sampling errors are shown in tables 48 and 49.

Table 45. — *Volume of growing stock on commercial forest land in West Virginia, in the Northeastern geographical sampling unit, by species and diameter classes, 1961*

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										
	All classes	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Yellow pines	112	25	27	21	22	12	5	—	—	—	—
White pine	24	2	2	3	3	3	3	4	4	—	—
Hemlock[1]	34	5	5	5	4	4	4	3	2	2	—
Total softwoods	170	32	34	29	29	19	12	7	6	2	—
White oak	288	26	32	40	55	44	28	21	34	4	4
Northern red oak	377	50	47	44	42	50	43	35	56	10	—
Chestnut oak	471	80	68	71	82	54	33	26	52	5	—
Other red oaks	250	25	30	26	33	36	35	20	42	3	—
Hickory	245	34	47	37	31	27	21	14	32	2	—
Yellow birch	38	6	7	8	6	4	3	2	2	—	—
Sweet birch	76	6	11	12	17	9	5	5	9	2	—
Sugar maple	231	55	36	30	22	18	17	11	37	5	—
Red maple	197	43	43	42	22	19	12	6	10	—	—
Beech	173	16	18	24	26	23	15	12	37	2	—
Blackgum	40	2	2	4	7	6	5	4	10	—	—
Ash	65	14	13	11	11	8	4	1	3	—	—
Basswood	100	7	15	12	9	11	12	10	24	—	—
Yellow-poplar	291	30	33	48	53	39	33	26	27	2	—
Black cherry	126	15	15	19	30	15	14	8	10	—	—
Cucumbertree	23	1	1	1	4	4	6	3	3	—	—
Black walnut	26	2	2	5	5	3	2	1	5	1	—
Other hardwoods	129	23	22	15	21	18	10	7	13	—	—
Total hardwoods	3,146	435	442	449	476	388	298	212	406	36	4
All species	3,316	467	476	478	505	407	310	219	412	38	4

[1] Includes about 30 percent of other softwoods.

Note: Sampling errors are shown in tables 48 and 49.

Table 46. — *Volume of growing stock on commercial forest land in West Virginia, in the Southern geographical sampling unit, by species and diameter classes, 1961*

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										
	All classes	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Yellow pines	52	6	8	5	8	9	6	5	5	—	—
Hemlock	51	11	11	4	4	5	6	8	2	—	—
White pine[1]	40	8	10	8	7	4	3	—	—	—	—
Total softwoods	143	25	29	17	19	18	15	13	7	—	—
White oak	256	42	39	37	32	31	17	15	38	5	—
Northern red oak	444	55	58	60	51	51	50	33	81	3	2
Chestnut oak	393	46	52	47	40	36	36	35	83	14	4
Other red oaks	454	32	35	39	64	58	73	55	92	6	—
Hickory	452	47	57	65	80	63	50	40	50	—	—
Yellow birch	42	3	3	3	3	4	4	5	16	1	—
Sweet birch	67	5	7	8	5	8	11	5	18	—	—
Sugar maple	179	36	29	20	15	12	10	12	45	—	—
Red maple	219	43	36	31	24	20	16	11	31	7	—
Beech	222	18	23	29	32	30	22	19	40	9	—
Blackgum	100	3	4	8	12	13	14	18	28	—	—
Ash	70	16	12	11	10	6	4	3	8	—	—
Basswood	154	12	17	20	28	23	13	14	27	—	—
Yellow-poplar	520	60	69	80	78	74	70	42	45	2	—
Cucumbertree	68	7	9	11	10	9	9	6	7	—	—
Black walnut	29	4	4	5	3	3	4	3	3	—	—
Other hardwoods	227	74	52	34	25	15	12	5	10	—	—
Total hardwoods	3,896	503	506	508	512	456	415	321	622	47	6
All species	4,039	528	535	525	531	474	430	334	629	47	6

[1] Includes about 10 percent of other softwoods.

Note: Sampling errors are shown in tables 48 and 49.

Table 47. — *Volume of growing stock on commercial forest land in West Virginia, in the Northwestern geographical sampling unit, by species and diameter classes, 1961*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Pitch and Virginia pines	63	6	11	19	16	6	5	—	—	—	—
Shortleaf pine[1]	54	10	12	9	9	5	4	3	2	—	—
Total softwoods	117	16	23	28	25	11	9	3	2	—	—
White oak	347	43	45	47	58	49	24	25	51	5	—
Northern red oak	312	35	37	42	47	41	22	25	53	10	—
Chestnut oak	188	13	19	25	36	31	21	14	24	2	3
Other red oaks	337	15	21	28	62	54	42	40	72	3	—
Hickory	270	60	47	42	40	26	15	12	21	7	—
Sugar maple	96	11	13	13	11	10	8	7	21	2	—
Red maple	61	17	14	10	7	5	4	2	2	—	—
Beech	132	10	13	12	12	21	18	11	35	—	—
Blackgum	30	3	3	3	4	5	4	1	7	—	—
Ash	79	13	11	10	8	11	10	7	9	—	—
Basswood	44	5	7	9	9	7	4	2	1	—	—
Yellow-poplar	169	19	21	22	22	27	23	12	23	—	—
Black cherry	35	3	4	5	10	6	2	1	4	—	—
Black walnut	44	7	6	6	5	6	6	4	4	—	—
Other hardwoods	230	35	35	32	31	29	19	15	33	1	—
Total hardwoods	2,374	289	296	306	362	328	222	178	360	30	3
All species	2,491	305	319	334	387	339	231	181	362	30	3

[1] Includes about 30 percent of other softwoods.

Note: Sampling errors are shown in tables 48 and 49.

Table 48. — *Sampling errors for growing stock on commercial forest land in West Virginia, by species and geographical sampling units, 1961*

(In percent)

Species	National forest	North-eastern	Southern	North-western
Pitch and Virginia pines	—	—	—	17
Yellow pines	16	20	20	—
White pine	—	25	—	—
Spruce	13	—	—	—
Hemlock	—	—	23	—
Other softwoods	14	26	65	25
White oak	11	10	9	9
Northern red oak	8	7	7	10
Chestnut oak	8	6	8	13
Other red oaks	12	12	8	12
Hickory	14	10	7	11
Yellow birch	9	21	15	—
Sweet birch	11	17	17	—
Sugar maple	10	12	8	14
Red maple	8	11	10	20
Beech	9	14	14	14
Blackgum	—	19	10	9
Ash	—	19	17	14
Basswood	16	13	13	21
Yellow-poplar	22	12	9	13
Black cherry	11	24	—	30
Cucumbertree	13	21	13	—
Black walnut	—	9	13	19
Other hardwoods	10	13	4	16

Table 49. — *Sampling errors for growing stock on commercial forest land in West Virginia, by diameter classes and geographical sampling units, 1961*

(In percent)

Diameter class (inches at breast height)	National forest	North-eastern	Southern	North-western
5.0- 6.9	3	4	3	6
7.0- 8.9	3	5	4	6
9.0-10.9	4	5	4	6
11.0-12.9	4	6	4	7
13.0-14.9	5	6	5	7
15.0-16.9	6	7	6	12
17.0-18.9	7	9	6	9
19.0-28.9	7	7	6	10
29.0-38.9	20	19	18	27
39.0 and larger	61	80	61	57

Table 50. — *Volume of sawtimber on commercial forest land in West Virginia, in the National forest geographical sampling unit, by species and diameter classes, 1961*

(In millions of board feet, International ¼-inch rule)

Species	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Yellow pines	89	22	17	15	13	8	14	—	—
Spruce	160	51	36	31	28	13	1	—	—
Other softwoods	193	23	23	27	25	28	67	—	—
Total softwoods	442	96	76	73	66	49	82	—	—
White oak	105	—	26	25	19	8	25	2	—
Northern red oak	374	—	60	61	66	52	126	9	—
Chestnut oak	250	—	49	44	41	38	74	2	2
Other red oaks	89	—	15	17	11	18	28	—	—
Hickory	82	—	26	16	15	8	17	—	—
Yellow birch	141	—	15	21	20	15	58	9	3
Sweet birch	50	—	7	11	15	9	8	—	—
Sugar maple	231	—	33	36	35	38	71	11	7
Red maple	122	—	21	15	16	27	41	2	—
Beech	340	—	71	71	73	71	54	—	—
Basswood	73	—	16	18	16	5	18	—	—
Yellow-poplar	193	—	53	50	50	17	21	2	—
Black cherry	221	—	62	50	52	31	26	—	—
Cucumbertree	59	—	16	15	12	7	9	—	—
Other hardwoods	121	—	46	27	21	9	18	—	—
Total hardwoods	2,451	—	516	477	462	353	594	37	12
All species	2,893	96	592	550	528	402	676	37	12

Note: Sampling errors are shown in tables 54 and 55.

Table 51. — *Volume of sawtimber on commercial forest land in West Virginia, in the Northeastern geographical sampling unit, by species and diameter classes, 1961*

(In millions of board feet, International ¼-inch rule)

Species	Diameter class (inches at breast height)								
	All classes	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Yellow pines	274	106	90	56	22	—	—	—	—
White pine	86	12	12	11	15	18	18	—	—
Other softwoods	115	22	21	20	17	19	9	7	—
Total softwoods	475	140	123	87	54	37	27	7	—
White oak	820	—	194	184	125	98	170	25	24
Northern red oak	1,050	—	149	203	198	179	275	46	—
Chestnut oak	1,076	—	292	223	146	126	265	24	—
Other red oaks	758	—	118	149	159	92	222	18	—
Hickory	551	—	112	113	96	65	155	10	—
Yellow birch	70	—	20	17	14	8	11	—	—
Sweet birch	195	—	59	39	23	22	44	8	—
Sugar maple	498	—	81	78	75	49	181	34	—
Red maple	284	—	78	77	54	26	49	—	—
Beech	493	—	95	94	66	54	175	9	—
Blackgum	136	—	25	23	20	17	51	—	—
Ash	108	—	39	31	20	6	12	—	—
Basswood	298	—	33	46	57	45	117	—	—
Yellow-poplar	786	—	193	166	150	126	138	13	—
Black cherry	324	—	108	65	61	35	55	—	—
Cucumbertree	86	—	15	19	26	12	14	—	—
Black walnut	69	—	14	11	7	5	23	9	—
Other hardwoods	288	—	77	75	44	33	59	—	—
Total hardwoods	7,890	—	1,702	1,613	1,341	998	2,016	196	24
All species	8,365	140	1,825	1,700	1,395	1,035	2,043	203	24

Note: Sampling errors are shown in tables 54 and 55.

Table 52. — *Volume of sawtimber on commercial forest land in West Virginia, in the Southern geographical sampling unit, by species and diameter classes, 1961*

(In millions of board feet, International ¼-inch rule)

Species	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Yellow pines	171	29	32	38	28	20	24	—	—
Hemlock	123	12	16	23	26	36	10	—	—
Other softwoods	87	32	27	15	13	—	—	—	—
Total softwoods	381	73	75	76	67	56	34	—	—
White oak	590	—	112	122	74	71	185	26	—
Northern red oak	1,204	—	182	214	225	154	404	15	10
Chestnut oak	1,113	—	140	145	155	164	414	72	23
Other red oaks	1,544	—	230	242	322	261	458	31	—
Hickory	1,200	—	284	257	226	187	246	—	—
Yellow birch	148	—	11	13	18	21	80	5	—
Sweet birch	205	—	20	32	50	22	81	—	—
Sugar maple	431	—	54	49	46	56	226	—	—
Red maple	464	—	87	81	72	51	142	31	—
Beech	659	—	106	122	92	92	200	47	—
Blackgum	366	—	40	51	61	83	131	—	—
Ash	122	—	34	24	15	12	37	—	—
Basswood	441	—	99	92	56	66	128	—	—
Yellow-poplar	1,358	—	284	313	322	201	226	12	—
Cucumbertree	179	—	35	39	42	28	35	—	—
Black walnut	71	—	10	14	18	12	17	—	—
Other hardwoods	265	—	87	59	49	21	49	—	—
Total hardwoods	10,360	—	1,815	1,869	1,843	1,502	3,059	239	33
All species	10,741	73	1,890	1,945	1,910	1,558	3,093	239	33

Note: Sampling errors are shown in tables 54 and 55.

Table 53. — *Volume of sawtimber on commercial forest land in West Virginia, in the Northwestern geographical sampling unit, by species and diameter classes, 1961*

(In millions of board feet, International ¼-inch rule)

Species	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0+
Pitch and Virginia pines	180	71	62	24	23	—	—	—	—
Other softwoods	118	33	29	17	14	16	9	—	—
Total softwoods	298	104	91	41	37	16	9	—	—
White oak	924	—	211	206	109	118	253	27	—
Northern red oak	874	—	169	168	99	118	267	53	—
Chestnut oak	569	—	128	127	98	69	122	12	13
Other red oaks	1,213	—	227	217	183	187	381	18	—
Hickory	521	—	142	111	67	57	106	38	—
Sugar maple	263	—	42	41	36	34	102	8	—
Red maple	85	—	27	19	17	10	12	—	—
Beech	440	—	43	89	83	54	171	—	—
Blackgum	83	—	14	17	14	7	31	—	—
Ash	196	—	30	45	48	30	43	—	—
Basswood	95	—	32	28	18	9	8	—	—
Yellow-poplar	459	—	79	116	100	54	110	—	—
Black cherry	93	—	36	22	10	6	19	—	—
Black walnut	106	—	16	25	28	18	19	—	—
Other hardwoods	561	—	111	130	90	67	155	8	—
Total hardwoods	6,482	—	1,307	1,361	1,000	838	1,799	164	13
All species	6,780	104	1,398	1,402	1,037	854	1,808	164	13

Note: Sampling errors are shown in tables 54 and 55.

Table 54. — *Sampling errors for sawtimber on commercial forest land in West Virginia, by species and geographical sampling units, 1961*

(In percent)

Species	National forest	North-eastern	Southern	North-western
Pitch and Virginia pines	—	—	—	14
Yellow pines	19	21	12	—
White pine	—	13	—	—
Spruce	16	—	—	—
Hemlock	—	—	28	—
Other softwoods	16	29	68	20
White oak	12	13	11	12
Northern red oak	11	9	9	12
Chestnut oak	10	9	11	15
Other red oaks	16	15	9	14
Hickory	15	15	10	14
Yellow birch	13	40	4	—
Sweet birch	17	21	11	—
Sugar maple	14	16	12	18
Red maple	12	21	10	32
Beech	11	17	16	18
Blackgum	—	23	11	27
Ash	—	18	11	17
Basswood	17	15	14	26
Yellow-poplar	26	13	12	16
Black cherry	14	34	—	34
Cucumbertree	16	23	18	—
Black walnut	—	13	43	16
Other hardwoods	22	12	10	28

Table 55. — *Sampling errors for sawtimber on commercial forest land in West Virginia, by diameter classes and geographical sampling units, 1961*

(In percent)

Diameter class (inches at breast height)	National forest	North-eastern	Southern	North-western
9.0-10.9[1]	12	21	16	12
11.0-12.9	4	6	4	7
13.0-14.9	5	6	5	7
15.0-16.9	6	7	6	11
17.0-18.9	7	9	6	9
19.0-28.9	6	7	6	10
29.0-38.9	20	19	18	27
39.0 and larger	60	81	61	57

[1] Softwoods only.

Table 56. — *Volume of sawtimber on commercial forest land in West Virginia, in the National forest geographical sampling unit, by species and quality classes, 1961*

(In millions of board feet)

Species	All classes	Standard-lumber logs			Tie-and-timber logs
		Grade 1	Grade 2	Grade 3	
Softwoods:[1]					
Yellow pines	89	14	22	53	—
White pine	31	9	9	13	—
Other softwoods	322	—	—	—	—
Total	442	23	31	66	—
Hardwoods:[2]					
Select red and white oaks	479	69	135	228	47
Other red and white oaks	339	43	73	124	99
Hickory	82	6	17	36	23
Yellow birch	141	8	29	93	11
Sugar maple	231	16	31	148	36
Ash and black cherry	257	32	89	120	16
Yellow-poplar	193	63	34	77	19
Other hardwoods	729	60	130	356	183
Total	2,451	297	538	1,182	434
All species	2,893	320	569	1,248	434

[1] The 120 million board feet of pine includes 52 million board feet in trees less than 13.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications. Spruce, hemlock, and miscellaneous softwoods were not graded into standard-lumber logs.

[2] The 2,451 million board feet of hardwoods includes 993 million board feet in trees less than 15.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications.

Table 57. — *Volume of sawtimber on commercial forest land in West Virginia, in the Northeastern geographical sampling unit, by species and quality classes, 1961*

(In millions of board feet)

Species	All classes	Standard-lumber logs			Tie-and-timber logs
		Grade 1	Grade 2	Grade 3	
Softwoods:[1]					
Yellow pines	274	25	64	185	—
White pine	86	18	29	39	—
Other softwoods	115	—	—	—	—
Total	475	43	93	224	—
Hardwoods:[2]					
Select red and white oaks	1,870	216	316	879	459
Other red and white oaks	1,834	192	330	862	450
Hickory	551	39	91	254	167
Yellow birch	70	4	15	46	5
Sugar maple	498	30	74	249	145
Ash, walnut and cherry	501	53	123	284	41
Yellow-poplar	786	113	118	337	218
Other hardwoods	1,780	92	253	1,116	319
Total	7,890	739	1,320	4,027	1,804
All species	8,365	782	1,413	4,251	1,804

[1] The 360 million board feet of pine includes 220 million board feet in trees less than 13.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications. Spruce, hemlock, and miscellaneous softwoods were not graded into standard-lumber logs.

[2] The 7,890 million board feet of hardwoods includes 3,315 million board feet in trees less than 15.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications.

Table 58. — *Volume of sawtimber on commercial forest land in West Virginia, in the Southern geographical sampling unit, by species and quality classes, 1961*

(In millions of board feet)

Species	All classes	Standard-lumber logs			Tie-and-timber logs
		Grade 1	Grade 2	Grade 3	
Softwoods:[1]					
Yellow pines	171	49	45	77	—
White pine	77	17	25	35	—
Other softwoods	133	—	—	—	—
Total	381	66	70	112	—
Hardwoods:[2]					
Select red and white oaks	1,794	198	363	790	443
Other red and white oaks	2,657	365	652	938	702
Hickory	1,200	83	264	549	304
Yellow birch	148	18	38	64	28
Sugar maple	431	18	88	166	159
Ash, walnut, and cherry	248	38	47	131	32
Yellow-poplar	1,358	175	218	581	384
Other hardwoods	2,524	230	529	1,190	575
Total	10,360	1,125	2,199	4,409	2,627
All species	10,741	1,191	2,269	4,521	2,627

[1] The 248 million board feet of pine includes 110 million board feet in trees less than 13.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications. Spruce, hemlock, and miscellaneous softwoods were not graded into standard-lumber logs.

[2] The 10,360 million board feet of hardwoods includes 3,684 million board feet in trees less than 15.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications.

Table 59. — *Volume of sawtimber on commercial forest land in West Virginia, in the Northwestern geographical sampling unit, by species and quality classes, 1961*

(In millions of board feet)

Species	All classes	Standard-lumber logs			Tie-and-timber logs
		Grade 1	Grade 2	Grade 3	
Softwoods:[1]					
Yellow pines	263	35	59	169	—
White pine	21	6	6	9	—
Other softwoods	14	—	—	—	—
Total	298	41	65	178	—
Hardwoods:[2]					
Select red and white oaks	1,798	218	428	673	479
Other red and white oaks	1,782	231	371	569	611
Hickory	521	46	113	202	160
Sugar maple	263	23	34	120	86
Ash, walnut, and cherry	395	40	97	198	60
Yellow-poplar	459	47	84	205	123
Other hardwoods	1,264	95	194	587	388
Total	6,482	700	1,321	2,554	1,907
All species	6,780	741	1,386	2,732	1,907

[1] The 284 million board feet of pine includes 184 million board feet in trees less than 13.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications. Spruce, hemlock, and miscellaneous softwoods were not graded into standard-lumber logs.

[2] The 6,482 million board feet of hardwoods includes 2,668 million board feet in trees less than 15.0 inches d.b.h. that cannot possibly contain a grade 1 standard-lumber log because of size specifications.

Table 60. — *Components of net annual growth of growing stock and sawtimber on commercial forest land in West Virginia, by geographical sampling units, 1960*

Components	National forest	North-eastern	Southern	North-western
	GROWING STOCK			
	Thousands of cubic feet			
Growth on initial growing stock[1]	22,061	62,417	78,363	51,398
Ingrowth — saplings that became poletimber	20,317	74,480	66,698	38,445
Gross growth	42,378	136,897	145,061	89,843
Annual mortality	4,684	13,529	17,910	7,768
Net annual growth	37,694	123,368	127,151	82,075
	SAWTIMBER			
	Thousands of board feet			
Growth on initial sawtimber inventory[1]	50,451	170,721	218,116	137,970
Ingrowth — poletimber trees that became sawtimber	59,532	211,171	179,810	111,194
Gross growth	109,983	381,892	397,926	249,164
Annual mortality	8,087	29,065	50,031	10,486
Net annual growth	101,896	352,827	347,895	238,678

[1] Includes growth on trees that were cut.

Table 61. — *Net annual growth of growing stock on commercial forest land in West Virginia by geographical sampling units and species, 1960*

(In thousands of cubic feet)

Species	National forest	North-eastern	Southern	North-western
Softwoods:				
Yellow pines	422	6,679	1,416	6,494
White pine	187	1,601	1,089	430
Hemlock	1,074	1,832	2,527	513
Spruce and other softwoods	1,906	848	444	—
All softwoods	3,589	10,960	5,476	7,437
Hardwoods:				
Select oaks	5,641	27,226	21,495	21,412
Other oaks	2,966	16,392	29,504	13,153
Hickory	844	5,187	8,762	6,081
Sugar maple	1,715	4,723	3,341	1,900
Ash, walnut, and cherry	4,360	11,556	3,758	5,993
Yellow-poplar	2,501	14,772	21,462	7,689
Other hardwoods	16,078	32,552	33,353	18,410
All hardwoods	34,105	112,408	121,675	74,638
All species	37,694	123,368	127,151	82,075
Sampling errors, in percent				
All softwoods	28.0	37.0	58.0	47.0
All hardwoods	7.3	9.8	9.6	9.6
All species	7.2	8.6	9.8	10.7

Table 62. — *Net annual growth of sawtimber on commercial forest land in West Virginia, by geographical sampling units and species, 1960*

(In thousands of board feet, International ¼-inch rule)

Species	National forest	North-eastern	Southern	North-western
Softwoods:				
Yellow pines	1,894	15,254	3,487	18,198
White pine	646	6,932	1,472	1,724
Hemlock	5,498	6,949	4,995	1,067
Spruce and other softwoods	6,926	2,216	248	—
All softwoods	14,964	31,351	10,202	20,989
Hardwoods:				
Select oaks	18,802	70,615	74,963	64,150
Other oaks	6,838	42,457	86,178	40,973
Hickory	1,477	10,124	30,622	12,005
Sugar maple	4,953	11,286	8,653	6,256
Ash, walnut, and cherry	10,332	20,679	9,424	15,130
Yellow-poplar	9,176	41,796	53,435	20,335
Other hardwoods	35,354	124,519	74,418	58,840
All hardwoods	86,932	321,476	337,693	217,689
All species	101,896	352,827	347,895	238,678
Sampling errors, in percent				
All softwoods	29.0	48.0	125.0	98.0
All hardwoods	11.0	14.3	11.3	14.9
All species	10.1	12.8	11.7	16.3

Table 63. — *Annual cut of growing stock and sawtimber on commercial forest land in West Virginia, by geographical sampling units and species, 1960*

Species	National forest	North-eastern	Southern	North-western
	GROWING STOCK			
	Thousand cubic feet			
Pines	308	476	2,022	2,291
Other softwoods	980	962	1,838	394
Total softwoods	1,288	1,438	3,860	2,685
Oaks	1,180	18,378	25,910	7,696
Hickory	84	1,515	3,501	2,878
Sugar maple	275	1,531	1,637	1,697
Ash, walnut, and cherry	197	847	399	1,081
Yellow-poplar	250	5,699	13,329	1,219
Other hardwoods	2,683	8,067	7,690	1,972
Total hardwoods	4,669	36,037	52,466	16,543
All species	5,957	37,475	56,326	19,228
Sampling error, percent	36.0	30.0	30.0	25.0
	SAWTIMBER			
	Thousand board feet			
	International ¼-inch rule			
Pines	1,112	1,790	7,460	8,818
Other softwoods	3,620	3,554	6,788	1,455
Total softwoods	4,732	5,344	14,248	10,273
Oaks	4,168	68,360	94,876	25,951
Hickory	265	5,371	13,341	9,098
Sugar maple	1,001	5,719	6,126	6,056
Ash, walnut, and cherry	655	2,710	1,266	3,503
Yellow-poplar	943	20,183	52,054	4,104
Other hardwoods	10,437	25,581	29,983	6,980
Total hardwoods	17,469	127,924	197,646	55,692
All species	22,201	133,268	211,894	65,965
Sampling error, percent	37.0	32.0	34.0	38.0

Table 64. — *County area in the National forest geographical sampling unit, by class, 1961*

County[1]	Total land area[2]	Nonforest land area	Forest land area		
			Non-commercial	Commercial	
				Acreage	Error[3]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*
Grant	14.1	0	4.3	9.8	10
Greenbrier	98.9	0	2.9	96.0	1
Hampshire	2.7	0	0	2.7	50
Hardy	48.3	0	0	48.3	18
Nicholas	23.5	0	0	23.5	21
Pendleton	107.4	0	7.9	99.5	2
Pocahontas	277.0	0	2.5	274.5	1
Preston	3.9	0	0	3.9	39
Randolph	170.4	0	9.6	160.8	1
Tucker	93.0	0	6.8	86.2	2
Webster	64.7	0	.9	63.8	1
Total	903.9	0	34.9	869.0	0.3

[1] Acreages for partial counties only; for acreages for the entire county, see table 65.
[2] From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.
[3] Sampling error at the 68-percent probability level.

Table 65. — *County area of counties within both the National forest and the Northeastern or Southern sampling units, by class, 1961*

County	Total land area	Nonforest land area	Forest land area		
			Non-commercial	Commercial	
				Acreage	Error
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*
Grant	305.3	82.6	4.3	218.4	4
Greenbrier	656.6	143.2	2.9	510.5	3
Hampshire	409.0	124.1	0	284.9	4
Hardy	374.4	85.6	3.6	285.2	6
Nicholas	415.4	69.1	.2	346.1	3
Pendleton	444.8	97.3	7.9	339.6	2
Pocahontas	603.5	123.8	12.7	467.0	2
Preston	412.8	147.0	.1	265.7	3
Randolph	663.1	101.5	9.6	552.0	2
Tucker	269.4	33.3	8.5	227.6	5
Webster	352.6	38.1	8.4	306.1	3
Total	4,906.9	1,045.6	58.2	3,803.1	1

Table 66. — *County area in the Northeastern geographical sampling unit, by class, 1961*

County	Total land area	Nonforest land area	Forest land area		
			Non-commercial	Commercial	
				Acreage	Error
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*
Barbour	215.0	82.7	0.9	131.4	6
Berkeley	202.3	105.2	0	97.1	8
Braxton	330.9	117.3	0	213.6	5
Grant*	291.2	82.6	0	208.6	4
Hampshire*	406.3	124.1	0	282.2	4
Hardy*	326.1	85.6	3.6	236.9	4
Harrison	267.5	153.7	.4	113.4	8
Jefferson	135.0	102.5	0	32.5	18
Lewis	250.9	116.6	0	134.3	7
Mineral	211.2	53.3	0	157.9	4
Morgan	149.1	33.8	5.8	109.5	5
Pendleton*	337.4	97.3	0	240.1	2
Pocahontas*	326.5	123.8	10.2	192.5	3
Preston*	408.9	147.0	.1	261.8	3
Randolph*	492.7	101.5	0	391.2	2
Taylor	108.8	52.9	1.2	54.7	9
Tucker*	176.4	33.3	1.7	141.4	7
Upshur	225.3	93.9	.2	131.2	6
Webster*	287.9	38.1	7.5	242.3	3
Total	5,149.4	1,745.2	31.6	3,372.6	1.7

* Acreages are shown only for the land that is not National forest; for acreages for the entire county, see table 65.

Table 67. — *County area in the Southern geographical sampling unit, by class, 1961*

County	Total land area	Nonforest land area	Forest land area		
			Non-commercial	Commercial	
				Acreage	Error
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*
Boone	320.6	24.7	0.0	295.9	2
Clay	218.9	33.7	0	185.2	3
Fayette	421.8	63.0	3.3	355.5	2
Greenbrier*	557.7	143.2	0	414.5	3
Kanawha	581.1	95.4	.1	485.6	2
Logan	291.8	21.2	3.3	267.3	2
McDowell	341.1	32.7	0	308.4	2
Mercer	266.9	74.4	0	192.5	4
Mingo	270.7	20.0	0	250.7	2
Monroe	302.7	93.8	0	208.9	5
Nicholas*	391.9	69.1	.2	322.6	3
Raleigh	386.6	77.7	1.3	307.6	3
Summers	229.8	56.4	.2	173.2	4
Wyoming	322.6	27.7	0	294.9	2
Total	4,904.2	833.0	8.4	4,062.8	1.2

* Acreages are shown only for the land that is not National forest; for acreages for the entire county, see table 65.

Table 68. — *County area in the Northwestern geographical sampling unit, by class, 1961*

County	Total land area	Nonforest land area	Forest land area		
			Non-commercial	Commercial	
				Acreage	Error
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*
Brooke	57.0	30.8	0	26.2	14
Cabell	178.6	47.9	0	130.7	5
Calhoun	179.8	33.2	0	146.6	4
Doddridge	204.2	61.7	0	142.5	5
Gilmer	216.9	39.9	2.0	175.0	4
Hancock	52.5	18.8	1.3	32.4	10
Jackson	296.3	108.6	0	187.7	5
Lincoln	280.3	54.8	0	225.5	3
Marion	197.8	69.9	.1	127.8	6
Marshall	195.8	77.8	0	118.0	6
Mason	276.5	108.2	0	168.3	5
Monongalia	233.6	99.2	0	134.4	6
Ohio	68.5	33.2	.8	34.5	12
Pleasants	83.2	23.9	0	59.3	7
Putnam	223.3	42.0	0	181.3	3
Ritchie	289.3	92.1	1.4	195.8	4
Roane	311.0	113.2	0	197.8	5
Tyler	163.8	60.3	0	103.5	6
Wayne	328.3	69.3	.1	258.9	3
Wetzel	231.7	47.6	0	184.1	3
Wirt	149.8	42.0	0	107.8	5
Wood	235.5	89.6	0	145.9	6
Total	4,453.7	1,364.0	5.7	3,084.0	1.9

Table 69. — *Commercial forest land in the National forest geographical sampling unit, by county and ownership group and by stand-size class, 1961*

(In thousands of acres)

County[1]	Ownership		Stand-size class		
	Public	Private	Sawtimber stands	Poletimber stands	Other stands
Grant	9.8	0	6.5	3.1	0.2
Greenbrier	96.0	0	64.7	29.5	1.8
Hampshire	2.7	0	1.8	.8	.1
Hardy	48.3	0	31.5	15.7	1.1
Nicholas	23.5	0	14.7	8.2	.6
Pendleton	99.5	0	65.1	31.9	2.5
Pocahontas	274.5	0	162.3	104.0	8.2
Preston	3.9	0	2.5	1.3	.1
Randolph	160.8	0	94.2	62.8	3.8
Tucker	86.2	0	51.6	31.0	3.6
Webster	63.8	0	39.1	23.7	1.0
Total	869.0	0	534.0	312.0	23.0

[1] Acreages for partial counties only; for acreage for the entire county, see table 70.

Table 70. — *Commercial forest land of counties within both the National forest and the Northeastern or Southern sampling units, by ownership group and by stand-size class, 1961*

(In thousands of acres)

County	Ownership		Stand-size class		
	Public	Private	Sawtimber stands	Poletimber stands	Other stands
Grant	9.8	208.6	101.3	65.6	51.5
Greenbrier	101.0	409.3	272.8	138.5	99.0
Hampshire	9.9	275.0	142.9	80.4	61.6
Hardy	56.2	229.0	149.3	86.0	49.9
Nicholas	23.5	322.4	173.9	98.7	73.3
Pendleton	99.5	240.1	188.8	104.2	46.6
Pocahontas	296.9	170.3	247.8	161.5	57.9
Preston	8.9	256.8	123.5	77.4	64.8
Randolph	170.3	381.7	301.4	170.4	80.2
Tucker	86.2	141.4	114.1	71.8	41.7
Webster	63.8	242.4	137.2	97.5	71.5
Total	926.0	2,877.0	1,953.0	1,152.0	698.0

Table 71. — *Commercial forest land in the Northeastern geographical sampling unit, by county and ownership group and by stand-size class, 1961*

(In thousands of acres)

County	Ownership		Stand-size class		
	Public	Private	Sawtimber stands	Poletimber stands	Other stands
Barbour	0	131.4	50.9	37.9	42.6
Berkeley	13.0	84.1	46.0	29.3	21.8
Braxton	6.2	207.4	101.8	56.1	55.7
Grant*	0	208.6	94.8	62.5	51.3
Hampshire*	7.2	275.1	141.2	79.6	61.5
Hardy*	7.9	229.0	117.8	70.3	48.8
Harrison	0	113.4	54.9	29.3	29.2
Jefferson	0	32.5	18.1	7.0	7.4
Lewis	.5	133.8	54.5	37.2	42.6
Mineral	.1	157.8	85.8	39.9	32.2
Morgan	7.2	102.3	50.8	30.9	27.8
Pendleton*	0	240.1	123.7	72.3	44.1
Pocahontas*	22.2	170.3	85.5	57.5	49.5
Preston*	5.0	256.9	121.0	76.2	64.7
Randolph*	9.4	381.9	207.3	107.6	76.4
Taylor	.3	54.4	23.8	14.6	16.3
Tucker*	0	141.4	62.5	40.8	38.1
Upshur	0	131.2	65.5	34.2	31.5
Webster*	0	242.4	98.1	73.8	70.5
Total	79.0	3,294.0	1,604.0	957.0	812.0

* Acreages are shown only for the land that is not National forest; for acreages for the entire county, see table 70.

Table 72. — *Commercial forest land in the Southern geographical sampling unit, by county and ownership group and by stand-size class, 1961*

(In thousands of acres)

County	Ownership		Stand-size class		
	Public	Private	Sawtimber stands	Poletimber stands	Other stands
Boone	7.9	288.0	176.3	74.0	45.6
Clay	0	185.2	71.7	56.5	57.0
Fayette	.8	354.7	190.9	89.3	75.3
Greenbrier*	5.0	409.5	208.2	109.1	97.2
Kanawha	6.8	478.8	225.5	139.4	120.7
Logan	.0	267.3	156.6	66.9	43.8
McDowell	7.7	300.9	151.3	91.6	65.7
Mercer	5.8	186.7	74.6	60.5	57.4
Mingo	.0	250.7	137.2	67.2	46.3
Monroe	.0	208.9	83.6	64.1	61.2
Nicholas*	.0	322.6	159.3	90.6	72.7
Raleigh	1.5	306.1	168.1	82.7	56.8
Summers	7.5	165.7	77.5	51.3	44.4
Wyoming	.0	294.9	147.2	79.8	67.9
Total	43.0	4,020.0	2,028.0	1,123.0	912.0

* Acreages are shown only for the land that is not National forest; for acreages for the entire county, see table 70.

Table 73. — *Commercial forest land in the Northwestern geographical sampling unit, by county and ownership group and by stand-size class, 1961*

(In thousands of acres)

County	Ownership		Stand-size class		
	Public	Private	Sawtimber stands	Poletimber stands	Other stands
Brooke	0.0	26.2	12.3	5.6	8.3
Cabell	.1	130.6	62.0	32.2	36.5
Calhoun	0	146.6	68.5	34.1	44.0
Doddridge	0	142.5	69.9	30.4	42.2
Gilmer	0	175.0	75.8	41.2	58.0
Hancock	0	32.4	17.8	7.1	7.5
Jackson	0	187.7	76.7	48.5	62.5
Lincoln	5.7	219.8	98.4	53.4	73.7
Marion	0	127.8	64.5	27.4	35.9
Marshall	0	118.0	65.7	25.0	27.3
Mason	17.7	150.6	80.4	39.8	48.1
Monongalia	8.6	125.8	59.6	30.1	44.7
Ohio	0	34.5	18.2	7.1	9.2
Pleasants	0	59.3	29.6	13.7	16.0
Putnam	0	181.3	76.9	44.2	60.2
Ritchie	0	195.8	96.6	45.0	54.2
Roane	0	197.8	83.4	45.5	68.9
Tyler	0	103.5	45.1	25.2	33.2
Wayne	8.1	250.8	104.0	62.6	92.3
Wetzel	4.7	179.4	113.4	37.8	32.9
Wirt	.1	107.7	54.3	23.5	30.0
Wood	0	145.9	65.9	33.6	46.4
Total	45.0	3.039.0	1,439.0	713.0	932.0

Table 74. — *Commercial forest land in the National forest geographical sampling unit, by county and forest-type group, 1961*

(In thousands of acres)

County[1]	White pine, spruce	Loblolly-shortleaf pine	Oak types[2]	Maple-beech-birch	Other hardwood types[3]
Grant	0.4	0.4	3.3	5.7	0
Greenbrier	3.2	3.7	33.5	55.6	0
Hampshire	.1	.1	1.0	1.5	0
Hardy	1.8	2.1	16.2	28.2	0
Nicholas	1.1	1.2	7.6	13.6	0
Pendleton	4.1	3.8	33.7	57.9	0
Pocahontas	15.9	15.2	83.8	159.6	0
Preston	.1	.2	1.3	2.3	0
Randolph	8.4	9.0	47.7	95.7	0
Tucker	5.3	3.9	27.2	49.8	0
Webster	2.6	3.4	19.7	38.1	0
Total	43.0	43.0	275.0	508.0	0

[1] Acreages for partial counties only; for acreages for the entire county, see table 75.
[2] Includes the oak-pine, oak-hickory, and oak-gum forest types.
[3] Includes the elm-ash-cottonwood and yellow-poplar forest types.

Table 75. — *Commercial forest land of counties within both the National forest and the Northeastern or Southern sampling units, by forest-type group, 1961*

(In thousands of acres)

County	White pine, spruce	Loblolly-shortleaf pine	Oak types	Maple-beech-birch	Other hardwood types
Grant	1.2	11.3	154.5	41.1	10.3
Greenbrier	8.3	13.4	331.6	130.5	26.5
Hampshire	1.3	13.7	206.3	49.9	13.7
Hardy	3.2	13.1	189.5	67.5	11.9
Nicholas	4.2	7.6	242.7	72.5	18.9
Pendleton	6.0	13.5	210.5	97.8	11.8
Pocahontas	16.6	25.4	223.1	192.7	9.4
Preston	1.4	13.1	190.1	47.8	13.3
Randolph	10.5	24.9	333.8	165.1	17.7
Tucker	5.9	11.1	128.0	75.2	7.4
Webster	3.4	16.9	192.9	80.9	12.1
Total	62.0	164.0	2,403.0	1,021.0	153.0

Table 76. — *Commercial forest land in the Northeastern geographical sampling unit, by county and forest-type group, 1961*

(In thousands of acres)

County	White pine, spruce	Loblolly-shortleaf pine	Oak types	Maple-beech-birch	Other hardwood types
Barbour	0.4	7.5	92.4	24.6	6.5
Berkeley	.5	4.5	71.5	16.5	4.1
Braxton	.7	10.5	152.2	39.7	10.5
Grant*	.8	10.9	151.2	35.4	10.3
Hampshire*	1.2	13.6	205.4	48.4	13.7
Hardy*	1.4	11.0	173.3	39.3	11.9
Harrison	.4	5.3	81.4	21.2	5.1
Jefferson	.1	1.4	23.6	6.1	1.3
Lewis	.4	7.7	94.2	24.9	7.1
Mineral	.6	6.6	114.4	29.1	7.2
Morgan	.5	5.3	78.6	19.8	5.3
Pendleton*	1.9	9.7	176.8	39.9	11.8
Pocahontas*	.7	10.2	139.3	32.9	9.4
Preston*	1.3	12.9	188.9	45.5	13.3
Randolph*	2.1	16.0	286.1	69.4	17.7
Taylor	.1	3.1	38.7	10.1	2.7
Tucker*	.6	7.2	100.8	25.4	7.4
Upshur	.5	6.1	94.0	24.0	6.6
Webster*	.8	13.5	173.2	42.8	12.1
Total	15.0	163.0	2,436.0	595.0	164.0

*Acreages shown are only for the land that is not National forest; for acreages for the entire county, see table 75.

Table 77. — *Commercial forest land in the Southern geographical sampling unit, by county and forest-type group, 1961*

(In thousands of acres)

County	White pine	Loblolly-shortleaf pine	Oak types	Maple-beech-birch	Other hardwood types
Boone	2.3	3.5	218.5	55.5	16.1
Clay	2.8	4.8	133.6	31.0	13.0
Fayette	4.4	6.6	255.3	65.5	23.7
Greenbrier*	5.0	9.7	298.3	74.9	26.6
Kanawha	5.7	10.1	351.3	87.2	31.3
Logan	2.3	3.1	192.7	52.7	16.5
McDowell	2.3	4.9	228.0	56.9	16.5
Mercer	2.2	5.6	140.4	32.6	11.7
Mingo	2.3	3.4	184.5	46.0	14.5
Monroe	2.3	6.4	152.0	36.0	12.2
Nicholas*	3.1	6.4	235.3	58.9	18.9
Raleigh	2.5	5.1	225.3	57.2	17.5
Summers	1.8	4.3	127.2	29.9	10.0
Wyoming	4.0	5.1	213.6	51.7	20.5
Total	43.0	79.0	2,956.0	736.0	249.0

* Acreages are shown only for the land that is not National forest; for acreages of the entire county, see table 75.

Table 78. — *Commercial forest land in the Northwestern geographical sampling unit, by county and forest-type group, 1961*

(In thousands of acres)

County	White pine	Loblolly-shortleaf pine	Oak types	Maple-beech-birch	Other hardwood types
Brooke	0.1	3.2	15.3	4.3	3.3
Cabell	.7	12.1	82.1	19.6	16.2
Calhoun	.5	13.0	91.2	22.9	19.0
Doddridge	.6	13.4	86.7	24.7	17.1
Gilmer	.7	16.5	107.8	27.6	22.4
Hancock	.2	3.0	20.1	5.3	3.8
Jackson	.8	20.5	116.1	25.1	25.2
Lincoln	.9	21.2	140.5	33.9	29.0
Marion	.6	12.3	79.4	20.5	15.0
Marshall	.8	10.8	71.0	22.2	13.2
Mason	1.0	17.4	103.8	26.2	19.9
Monongalia	.5	15.0	81.5	20.2	17.2
Ohio	.2	3.5	18.6	7.8	4.4
Pleasants	.4	5.4	36.6	10.2	6.7
Putnam	.9	17.4	112.8	27.7	22.5
Ritchie	1.1	18.4	119.6	33.3	23.4
Roane	.9	21.7	122.2	29.3	23.7
Tyler	.4	11.0	63.3	15.4	13.4
Wayne	1.1	26.0	160.4	38.4	33.0
Wetzel	1.3	12.1	107.7	42.0	21.0
Wirt	.7	9.7	65.2	19.8	12.4
Wood	.6	15.4	89.1	22.6	18.2
Total	15.0	299.0	1,891.0	499.0	380.0

Table 79. — *Volume of growing stock on commercial forest land in the National forest geographical sampling unit, by county and stand-size class, 1961*

County[1]	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million cu. ft.	*Million cu. ft.*	*Million cu. ft.*	*Million cu. ft.*	*Percent*
Grant	11.9	3.8	0.1	15.8	2
Greenbrier	100.6	36.7	2.3	139.6	3
Hampshire	3.0	.8	0	3.8	13
Hardy	53.1	15.9	1.1	70.1	4
Nicholas	24.8	7.0	.2	32.0	4
Pendleton	124.4	24.9	1.8	151.1	3
Pocahontas	288.0	75.9	5.9	369.8	2
Preston	4.3	1.2	0	5.5	7
Randolph	161.2	57.8	2.7	221.7	3
Tucker	86.3	29.7	2.3	118.3	3
Webster	70.4	16.3	.6	87.3	3
Total	928.0	270.0	17.0	1,215.0	2

[1] Volumes are for partial counties only; for volumes for the entire county, see table 80.

Table 80. — *Volume of growing stock in counties within both the National forest and the Northeastern or Southern sampling units, by stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million cu. ft.	*Million cu. ft.*	*Million cu. ft.*	*Million cu. ft.*	*Percent*
Grant	141.0	68.5	10.1	219.6	5
Greenbrier	391.5	129.0	33.9	554.4	4
Hampshire	195.0	83.1	14.2	292.3	5
Hardy	209.6	90.1	11.7	311.4	5
Nicholas	263.1	82.3	20.7	366.1	4
Pendleton	306.9	97.4	8.4	412.7	4
Pocahontas	430.0	139.5	21.2	590.7	5
Preston	167.6	74.7	11.1	253.4	5
Randolph	454.5	175.6	21.6	651.7	4
Tucker	165.6	68.8	16.0	250.4	5
Webster	219.2	92.0	15.1	326.3	3
Total	2,944.0	1,101.0	184.0	4,229.0	2

Table 81. — *Volume of growing stock on commercial forest land in the Northeastern geographical sampling unit, by county and stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million cu. ft.	*Million cu. ft.*	*Million cu. ft.*	*Million cu. ft.*	*Percent*
Barbour	58.3	30.8	9.4	98.5	8
Berkeley	57.4	27.3	5.1	89.8	9
Braxton	132.1	48.9	12.0	193.0	7
Grant*	129.1	64.7	10.0	203.8	5
Hampshire*	192.0	82.3	14.2	288.5	5
Hardy*	156.5	74.2	10.6	241.3	5
Harrison	67.3	25.1	5.6	98.0	10
Jefferson	21.0	6.3	1.6	28.9	20
Lewis	64.0	30.5	9.4	103.9	9
Mineral	117.6	40.3	7.5	165.4	6
Morgan	70.5	31.1	5.9	107.5	6
Pendleton*	182.5	72.4	6.6	261.5	5
Pocahontas*	142.1	63.5	15.3	220.9	10
Preston*	163.3	73.5	11.1	247.9	5
Randolph*	293.4	117.7	18.9	430.0	5
Taylor	28.0	12.6	3.3	43.9	12
Tucker*	79.3	39.1	13.7	132.1	7
Upshur	85.8	30.1	6.3	122.2	8
Webster*	148.8	75.6	14.5	238.9	4
Total	2,189.0	946.0	181.0	3,316.0	3

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 80.

Table 82. — *Volume of growing stock on commercial forest land in the Southern geographical sampling unit, by county and stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million cu. ft.	*Million cu. ft.*	*Million cu. ft.*	*Million cu. ft.*	*Percent*
Boone	251.7	65.7	18.3	335.7	3
Clay	103.3	46.7	17.3	167.3	4
Fayette	260.4	73.7	36.4	370.5	4
Greenbrier*	291.0	92.2	31.6	414.8	4
Kanawha	324.7	113.8	31.9	470.4	3
Logan	225.9	59.2	17.6	302.7	4
McDowell	192.7	82.1	25.3	300.1	3
Mercer	95.6	49.4	14.2	159.2	5
Mingo	169.7	62.8	22.5	255.0	3
Monroe	87.5	49.1	21.7	158.3	5
Nicholas*	238.3	75.3	20.5	334.1	4
Raleigh	197.0	65.0	38.4	300.4	4
Summers	113.0	40.1	11.7	164.8	5
Wyoming	215.2	68.9	21.6	305.7	3
Total	2,766.0	944.0	329.0	4,039.0	2

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 80.

Table 83. — *Volume of growing stock on commercial forest land in the Northwestern geographical sampling unit, by county and stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million cu. ft.	*Million cu. ft.*	*Million cu. ft.*	*Million cu. ft.*	*Percent*
Brooke	14.4	5.1	1.0	20.5	20
Cabell	76.5	25.1	4.8	106.4	9
Calhoun	82.8	29.1	5.3	117.2	8
Doddridge	90.0	24.5	4.4	118.9	9
Gilmer	96.4	33.8	5.7	135.9	8
Hancock	19.7	6.4	1.4	27.5	15
Jackson	98.3	29.4	7.2	134.9	8
Lincoln	122.9	49.5	9.5	181.9	7
Marion	78.0	24.8	5.4	108.2	9
Marshall	78.8	24.0	5.1	107.9	9
Mason	95.9	31.8	7.0	134.7	8
Monongalia	72.7	27.9	4.4	105.0	9
Ohio	21.6	6.5	1.7	29.8	17
Pleasants	34.7	12.8	2.6	50.1	11
Putnam	97.6	35.6	6.4	139.6	7
Ritchie	116.1	39.5	8.3	163.9	7
Roane	104.5	34.7	7.7	146.9	8
Tyler	53.7	21.4	3.9	79.0	10
Wayne	131.8	55.6	8.6	196.0	7
Wetzel	139.6	35.4	6.9	181.9	7
Wirt	66.7	20.2	3.9	90.8	9
Wood	80.3	27.9	5.8	114.0	9
Total	1,773.0	601.0	117.0	2,491.0	4

Table 84. — *Volume of sawtimber on commercial forest land in the National forest geographical sampling unit, by county and stand-size class, 1961*

County[1]	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million bd. ft.	*Million bd. ft.*	*Million bd. ft.*	*Million bd. ft.*	*Percent*
Grant	34.4	4.5	0.1	39.0	10
Greenbrier	295.1	35.7	.6	331.4	5
Hampshire	8.5	.8	0	9.3	19
Hardy	152.7	16.2	.4	169.3	6
Nicholas	70.0	7.6	.1	77.7	6
Pendleton	364.1	29.5	.3	393.9	5
Pocahontas	782.1	86.5	.9	869.5	4
Preston	12.2	1.4	0	13.6	10
Randolph	438.2	56.9	1.0	496.1	4
Tucker	249.8	29.4	.4	279.6	5
Webster	193.9	19.5	.2	213.6	4
Total	2,601.0	288.0	4.0	2,893.0	3

[1] Volumes are for partial counties only; for volumes for the entire county, see table 85.

Table 85. — *Volume of sawtimber in counties within both the National forest and the Northeastern or Southern sampling units, by stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million bd. ft.	*Million bd. ft.*	*Million bd. ft.*	*Million bd. ft.*	*Percent*
Grant	435.9	83.2	11.1	530.2	8
Greenbrier	1,245.0	171.0	30.0	1,446.0	5
Hampshire	613.1	105.9	19.1	738.1	7
Hardy	633.6	110.4	19.1	763.1	7
Nicholas	823.4	117.4	20.7	961.5	5
Pendleton	938.1	113.8	8.2	1,060.1	7
Pocahontas	1,186.3	161.1	11.8	1,359.2	7
Preston	529.2	94.4	16.2	639.8	8
Randolph	1,401.6	197.2	19.9	1,618.7	6
Tucker	496.0	77.0	12.9	585.9	8
Webster	650.8	108.6	17.0	776.4	6
Total	8,953.0	1,340.0	186.0	10,479.0	5

Table 86. — *Volume of sawtimber on commercial forest land in the Northeastern geographical sampling unit, by county and stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million bd. ft.	*Million bd. ft.*	*Million bd. ft.*	*Million bd. ft.*	*Percent*
Barbour	199.7	37.4	14.3	251.4	10
Berkeley	183.2	35.6	6.5	225.3	11
Braxton	441.5	62.0	19.9	523.4	8
Grant*	401.4	78.7	11.0	491.1	7
Hampshire*	604.6	105.1	19.1	728.8	7
Hardy*	480.8	94.2	18.8	593.8	7
Harrison	224.7	34.2	10.6	269.5	11
Jefferson	70.3	9.2	1.3	80.8	22
Lewis	219.9	38.1	6.9	264.9	10
Mineral	385.1	51.1	8.4	444.6	8
Morgan	225.3	38.6	6.9	270.8	9
Pendleton*	573.9	84.3	7.9	666.1	8
Pocahontas*	403.8	74.6	11.0	489.4	13
Preston*	517.0	93.0	16.2	626.2	7
Randolph*	963.1	140.3	19.0	1,122.4	7
Taylor	91.7	16.4	6.1	114.2	14
Tucker*	246.1	47.6	12.5	306.2	10
Upshur	283.1	38.5	11.8	333.4	10
Webster*	456.8	89.1	16.8	562.7	6
Total	6,972.0	1,168.0	225.0	8,365.0	5

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 85.

Table 87. — *Volume of sawtimber on commercial forest land in the Southern geographical sampling unit, by county and stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million bd. ft.	*Million bd. ft.*	*Million bd. ft.*	*Million bd. ft.*	*Percent*
Boone	820.8	90.1	19.3	930.2	5
Clay	332.5	67.2	17.1	416.8	6
Fayette	876.1	112.5	39.4	1,028.0	5
Greenbrier*	949.8	135.3	29.5	1,114.6	5
Kanawha	1,057.5	165.3	31.2	1,254.0	5
Logan	761.2	83.2	18.7	863.1	5
McDowell	614.3	117.0	24.9	756.2	5
Mercer	305.3	73.0	12.0	390.3	7
Mingo	543.4	87.3	22.9	653.6	5
Monroe	289.2	72.4	19.9	381.5	7
Nicholas*	753.4	109.7	20.7	883.8	5
Raleigh	667.9	97.8	41.2	806.9	5
Summers	359.5	56.4	11.1	427.0	6
Wyoming	714.1	98.8	22.1	835.0	5
Total	9,045.0	1,366.0	330.0	10,741.0	4

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 85.

Table 88. — *Volume of sawtimber on commercial forest land in the Northwestern geographical sampling unit, by county and stand-size class, 1961*

County	Sawtimber stands	Poletimber stands	Other stands	Total	
				Volume	Error
	Million bd. ft.	*Million bd. ft.*	*Million bd. ft.*	*Million bd. ft.*	*Percent*
Brooke	44.0	6.8	4.6	55.4	23
Cabell	236.0	31.7	21.2	288.9	11
Calhoun	249.2	38.4	23.6	311.2	11
Doddridge	279.5	32.3	19.6	331.4	11
Gilmer	299.1	44.1	25.9	369.1	10
Hancock	59.6	8.6	5.7	73.9	18
Jackson	281.3	39.7	32.3	353.3	10
Lincoln	369.4	63.7	42.5	475.6	9
Marion	244.2	32.3	23.9	300.4	11
Marshall	253.1	31.9	22.8	307.8	11
Mason	292.1	43.9	31.2	367.2	10
Monongalia	227.6	36.1	23.0	286.7	11
Ohio	68.5	8.9	7.6	85.0	20
Pleasants	106.1	17.2	11.6	134.9	13
Putnam	304.8	46.4	26.9	378.1	9
Ritchie	364.2	53.3	37.0	454.5	9
Roane	316.5	47.0	34.4	397.9	10
Tyler	167.1	27.9	17.4	212.4	12
Wayne	409.1	74.4	38.4	521.9	9
Wetzel	434.9	47.2	29.1	511.2	10
Wirt	206.8	26.9	17.4	251.1	12
Wood	249.9	36.3	25.9	312.1	11
Total	5,463.0	795.0	522.0	6,780.0	5

Table 89. — *Volume of growing stock on commercial forest land in the National forest geographical sampling unit, by county and species, 1961*

(In millions of cubic feet)

County[1]	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Grant	0.4	0.6	0.7	1.7	0.6	1.7
Greenbrier	3.5	5.2	6.5	15.2	4.9	15.2
Hampshire	.1	.1	.2	.4	.1	.5
Hardy	1.5	2.3	3.1	6.9	2.8	8.5
Nicholas	.7	1.1	1.7	3.5	1.2	3.7
Pendleton	3.2	4.9	7.0	15.1	5.9	16.7
Pocahontas	9.8	13.6	19.7	43.1	13.0	40.0
Preston	.2	.2	.2	.6	.2	.7
Randolph	6.0	8.3	12.2	26.5	7.7	23.0
Tucker	2.8	4.5	6.1	13.4	4.3	12.4
Webster	1.8	3.2	4.6	9.6	3.3	9.6
Total	30.0	44.0	62.0	136.0	44.0	132.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Grant	1.7	0.5	0.5	1.2	1.1	1.1
Greenbrier	14.0	3.9	4.4	10.2	8.6	10.3
Hampshire	.4	.1	.1	.3	.3	.3
Hardy	7.0	1.9	2.4	4.8	5.0	5.5
Nicholas	2.9	.9	1.1	2.2	2.5	2.5
Pendleton	14.3	4.3	4.6	9.9	12.6	11.2
Pocahontas	31.4	10.9	12.4	25.4	27.8	27.6
Preston	.5	.1	.2	.4	.4	.4
Randolph	18.8	6.7	7.8	15.3	15.8	16.3
Tucker	10.7	3.2	3.6	8.6	8.9	9.2
Webster	7.3	2.5	2.9	5.7	7.0	6.6
Total	109.0	35.0	40.0	84.0	90.0	91.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Grant	1.7	0.4	0.9	1.4	1.3	14.1
Greenbrier	16.1	3.9	7.2	12.3	13.4	124.4
Hampshire	.4	.1	.1	.3	.4	3.4
Hardy	7.5	2.0	3.0	5.7	7.1	63.2
Nicholas	3.2	.9	1.5	2.8	3.1	28.5
Pendleton	18.0	4.0	6.8	13.5	14.2	136.0
Pocahontas	35.7	10.0	19.1	35.1	38.3	326.7
Preston	.6	.2	.2	.5	.5	4.9
Randolph	21.5	6.0	11.5	21.8	23.0	195.2
Tucker	12.8	3.0	5.6	11.2	11.4	104.9
Webster	8.5	2.5	4.1	8.4	9.3	77.7
Total	126.0	33.0	60.0	113.0	122.0	1,079.0

[1] Volumes are for partial counties only; for volumes for the entire county, see table 90.

Table 90. — *Volume of growing stock in counties within both the National forest and the Northeastern or Southern sampling units, by species, 1961*

(In millions of cubic feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Grant	7.5	1.7	3.1	12.3	17.4	23.7
Greenbrier	8.3	10.8	11.1	30.2	30.6	58.3
Hampshire	9.8	1.8	3.2	14.8	24.3	33.5
Hardy	10.3	4.6	5.6	20.5	20.3	35.7
Nicholas	4.4	4.9	5.7	15.0	22.2	42.3
Pendleton	12.4	7.3	10.1	29.8	23.2	46.4
Pocahontas	15.7	14.4	22.6	52.7	30.0	63.7
Preston	8.8	2.2	3.2	14.2	18.8	26.1
Randolph	18.4	11.1	17.5	47.0	45.9	75.4
Tucker	7.2	6.5	7.5	21.2	15.0	28.4
Webster	9.2	4.7	7.4	21.3	23.3	35.5
Total	112.0	70.0	97.0	279.0	271.0	469.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Grant	31.1	15.6	16.9	3.7	15.9	13.2
Greenbrier	52.4	52.4	49.5	15.1	28.7	33.2
Hampshire	43.1	24.6	22.4	3.7	20.8	16.1
Hardy	42.3	22.0	20.2	7.6	21.7	19.3
Nicholas	35.9	37.0	38.1	4.3	18.4	21.1
Pendleton	53.0	25.2	21.6	12.0	31.4	27.6
Pocahontas	67.5	28.9	29.8	27.5	42.3	41.8
Preston	39.7	22.3	17.6	2.6	17.1	15.1
Randolph	77.6	32.4	40.3	19.5	47.4	42.4
Tucker	28.2	12.3	12.6	10.1	17.9	17.2
Webster	43.2	22.3	22.0	7.9	23.4	20.0
Total	514.0	295.0	291.0	114.0	285.0	267.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Grant	11.7	6.4	19.1	14.5	18.1	207.3
Greenbrier	39.5	20.5	62.7	24.6	56.7	524.2
Hampshire	14.2	8.5	23.9	19.4	23.0	277.5
Hardy	19.9	9.2	22.9	23.1	26.7	290.9
Nicholas	21.1	13.4	42.0	13.8	41.5	351.1
Pendleton	33.2	12.7	28.3	31.7	36.6	382.9
Pocahontas	45.7	16.9	38.4	48.6	56.9	538.0
Preston	13.2	7.6	21.3	17.3	20.5	239.2
Randolph	47.1	20.7	47.8	49.8	58.4	604.7
Tucker	20.3	6.9	18.0	20.1	22.2	229.2
Webster	19.1	9.2	26.6	22.1	30.4	305.0
Total	285.0	132.0	351.0	285.0	391.0	3,950.0

Table 91. — *Volume of growing stock on commercial forest land in the Northeastern geographical sampling unit, by county and species, 1961*

(In millions of cubic feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Barbour	4.4	0.5	0.6	5.5	13.2	11.9
Berkeley	3.0	.7	.9	4.6	8.4	8.9
Braxton	7.0	.9	1.7	9.6	19.6	21.9
Grant*	7.1	1.1	2.4	10.6	16.8	22.0
Hampshire*	9.7	1.7	3.0	14.4	24.2	33.0
Hardy*	8.8	2.3	2.5	13.6	17.5	27.2
Harrison	4.0	.4	.5	4.9	11.3	14.1
Jefferson	.9	.2	.2	1.3	3.2	3.1
Lewis	4.3	.7	.9	5.9	9.6	9.8
Mineral	5.1	1.1	1.5	7.7	16.3	20.9
Morgan	3.5	.7	1.2	5.4	9.5	12.4
Pendleton*	9.2	2.4	3.1	14.7	17.3	29.7
Pocahontas*	6.0	.9	2.7	9.6	17.0	23.6
Preston*	8.6	2.0	3.0	13.6	18.6	25.4
Randolph*	12.5	2.9	5.2	20.6	38.2	52.4
Taylor	1.7	.2	.3	2.2	5.2	4.8
Tucker*	4.4	2.0	1.4	7.8	10.7	16.0
Upshur	4.4	.8	1.1	6.3	11.4	14.0
Webster*	7.4	1.5	2.8	11.7	20.0	25.9
Total	112.0	23.0	35.0	170.0	288.0	377.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Barbour	10.9	6.4	6.3	1.8	5.2	6.5
Berkeley	12.6	6.8	7.3	1.1	6.7	5.0
Braxton	25.3	13.7	14.3	2.5	13.9	11.3
Grant*	29.4	15.1	16.4	2.5	14.8	12.1
Hampshire*	42.7	24.5	22.3	3.4	20.5	15.8
Hardy*	35.3	20.1	17.8	2.8	16.7	13.8
Harrison	10.2	7.0	6.5	1.9	5.6	6.3
Jefferson	4.1	1.9	2.2	.4	2.1	1.8
Lewis	14.3	9.6	7.9	1.3	6.9	6.2
Mineral	23.1	10.8	11.8	2.0	11.8	9.3
Morgan	15.1	7.9	8.0	1.2	7.7	6.1
Pendleton*	38.6	20.9	17.0	2.1	18.9	16.3
Pocahontas*	36.1	17.9	17.4	2.3	14.7	14.1
Preston*	39.2	22.2	17.4	2.2	16.7	14.7
Randolph*	58.7	25.6	32.4	4.4	31.8	26.0
Taylor	5.6	2.6	3.1	.9	2.7	2.8
Tucker*	17.5	9.1	9.0	1.5	9.0	8.0
Upshur	16.4	8.1	8.8	1.5	8.9	7.5
Webster*	35.9	19.8	19.1	2.2	16.4	13.4
Total	471.0	250.0	245.0	38.0	231.0	197.0

CONTINUED

Table 91 — *continued*

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Barbour	4.4	2.2	9.5	6.9	7.8	93.0
Berkeley	4.7	3.0	7.9	5.9	6.9	85.2
Braxton	10.7	5.9	17.4	12.2	14.7	183.4
Grant*	10.0	6.0	18.2	13.1	16.8	193.2
Hampshire*	13.8	8.4	23.8	19.1	22.6	274.1
Hardy*	12.4	7.2	19.9	17.4	19.6	227.7
Harrison	4.0	1.8	10.3	7.0	7.1	93.1
Jefferson	1.4	.9	2.5	2.0	2.0	27.6
Lewis	5.0	2.9	9.7	6.4	8.4	98.0
Mineral	9.4	5.4	13.9	10.7	12.3	157.7
Morgan	5.9	3.3	9.7	6.8	8.5	102.1
Pendleton*	15.4	8.6	21.5	18.1	22.4	246.8
Pocahontas*	10.1	6.8	19.3	13.4	18.6	211.3
Preston*	12.6	7.4	21.1	16.8	20.0	234.3
Randolph*	25.9	14.5	36.2	27.8	35.5	409.4
Taylor	2.2	1.3	4.3	2.8	3.4	41.7
Tucker*	7.5	3.9	12.4	8.9	10.8	124.3
Upshur	7.0	3.8	10.9	8.0	9.6	115.9
Webster*	10.6	6.7	22.5	13.7	21.0	227.2
Total	173.0	100.0	291.0	217.0	268.0	3,146.0

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 90.

Table 92. — *Volume of growing stock on commercial forest land in the Southern geographical sampling unit, by county and species, 1961*

(In millions of cubic feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Boone	4.6	4.1	3.0	11.7	19.8	40.7
Clay	2.1	2.0	1.9	6.0	11.6	20.3
Fayette	4.3	6.1	4.3	14.7	21.8	38.5
Greenbrier*	4.8	5.6	4.6	15.0	25.7	43.1
Kanawha	5.3	5.7	4.6	15.6	29.1	52.0
Logan	3.2	3.7	2.4	9.3	17.3	37.6
McDowell	5.3	2.2	2.4	9.9	20.0	28.2
Mercer	1.9	1.8	1.8	5.5	11.8	16.6
Mingo	3.3	3.1	2.4	8.8	16.1	24.6
Monroe	2.8	1.9	1.6	6.3	12.1	14.9
Nicholas*	3.7	3.8	4.0	11.5	21.0	38.6
Raleigh	4.9	5.1	2.5	12.5	19.7	32.1
Summers	2.3	1.8	1.8	5.9	11.2	19.2
Wyoming	3.5	4.1	2.7	10.3	18.8	37.6
Total	52.0	51.0	40.0	143.0	256.0	444.0

CONTINUED

Table 92 — *continued*

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Boone	34.7	34.8	39.9	2.9	15.3	17.8
Clay	16.7	18.4	17.9	2.0	7.3	8.9
Fayette	33.9	41.7	41.4	3.8	18.3	20.4
Greenbrier*	38.4	48.5	45.1	4.9	20.1	22.9
Kanawha	44.2	61.5	53.2	3.8	20.3	26.4
Logan	28.8	28.8	35.9	1.6	15.7	15.6
McDowell	28.9	39.6	33.8	5.9	10.4	16.8
Mercer	15.9	16.6	16.2	1.5	6.3	8.3
Mingo	24.4	32.5	28.2	6.0	9.1	14.1
Monroe	16.3	18.6	16.5	1.9	5.6	8.7
Nicholas*	33.0	36.1	37.0	2.1	15.9	18.6
Raleigh	30.3	28.6	34.2	2.8	13.3	15.0
Summers	17.4	17.7	18.4	1.0	6.9	9.5
Wyoming	30.1	30.6	34.3	1.8	14.5	16.0
Total	393.0	454.0	452.0	42.0	179.0	219.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Boone	18.9	13.7	38.2	9.2	38.1	324.0
Clay	7.9	5.4	20.8	5.2	18.9	161.3
Fayette	23.0	15.8	48.2	11.3	37.7	355.8
Greenbrier*	23.4	16.6	55.5	12.7	42.9	399.8
Kanawha	23.0	17.6	62.7	13.2	47.8	454.8
Logan	21.8	13.3	34.5	8.2	34.3	293.4
McDowell	14.1	10.1	41.9	8.3	32.2	290.2
Mercer	7.1	4.8	19.9	4.9	23.8	153.7
Mingo	13.5	8.6	35.7	6.9	26.5	246.2
Monroe	7.2	5.0	24.2	4.7	16.3	152.0
Nicholas*	17.9	12.5	40.5	11.0	38.4	322.6
Raleigh	18.1	12.1	40.4	7.7	33.6	287.9
Summers	7.2	5.7	20.9	5.0	18.8	158.9
Wyoming	18.9	12.8	36.6	8.7	34.7	295.4
Total	222.0	154.0	520.0	117.0	444.0	3,896.0

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 90.

Table 93. — *Volume of growing stock on commercial forest land in the Northwestern geographical sampling unit, by county and species, 1961*

(In millions of cubic feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Brooke	0.9	0.1	0.0	1.0	2.8	2.5
Cabell	4.3	.3	.3	4.9	15.6	13.5
Calhoun	5.2	.4	.2	5.8	16.9	16.4
Doddridge	3.9	.5	.3	4.7	16.2	16.7
Gilmer	6.1	.4	.3	6.8	19.0	16.9
Hancock	1.0	.1	.1	1.2	3.8	3.8
Jackson	5.0	.2	.3	5.5	20.8	16.5
Lincoln	9.0	.4	.3	9.7	24.6	21.5
Marion	4.4	.4	.2	5.0	15.1	14.9
Marshall	3.8	.3	.3	4.4	14.2	13.6
Mason	5.6	.3	.4	6.3	19.7	17.5
Monongalia	4.9	.3	.2	5.4	13.7	10.4
Ohio	1.0	.1	.1	1.2	3.7	4.2
Pleasants	2.2	.1	.2	2.5	6.8	6.1
Putnam	5.9	.5	.4	6.8	19.5	14.9
Ritchie	6.9	.4	.4	7.7	23.0	21.1
Roane	6.1	.4	.4	6.9	21.1	17.0
Tyler	3.8	.2	.2	4.2	11.4	8.3
Wayne	10.3	.4	.4	11.1	26.6	20.4
Wetzel	5.2	.6	.5	6.3	23.7	28.6
Wirt	3.5	.3	.2	4.0	12.6	13.2
Wood	5.0	.3	.3	5.6	16.2	14.0
Total	104.0	7.0	6.0	117.0	347.0	312.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Brooke	1.7	2.7	2.2	0.0	0.8	0.5
Cabell	7.9	15.7	11.6	.1	4.1	2.3
Calhoun	9.3	13.8	12.8	.1	3.8	3.1
Doddridge	9.3	16.3	13.1	.2	4.7	2.9
Gilmer	10.2	18.5	15.2	.1	5.1	3.2
Hancock	2.2	3.1	3.0	.0	1.0	.8
Jackson	10.2	21.4	14.7	.1	4.8	3.2
Lincoln	14.2	20.3	20.1	.3	6.6	4.4
Marion	8.6	15.0	12.1	.1	3.9	2.9
Marshall	8.0	14.7	11.2	.2	4.8	2.8
Mason	10.2	19.4	14.5	.1	5.0	3.4
Monongalia	8.1	13.7	11.4	.1	4.2	2.6
Ohio	2.2	4.4	3.1	.0	1.3	.7
Pleasants	3.6	6.0	5.3	.0	2.0	1.3
Putnam	9.9	18.6	15.0	.3	5.8	3.3
Ritchie	12.1	23.1	17.7	.1	6.4	4.1
Roane	11.2	21.8	16.4	.2	5.6	3.6
Tyler	5.8	10.9	8.2	.1	3.1	1.9

CONTINUED

Table 93 — *continued*

Wayne	14.3	24.8	21.5	.3	7.7	4.5
Wetzel	13.5	23.5	18.3	.3	7.6	4.5
Wirt	6.8	12.4	10.1	.1	3.3	2.3
Wood	8.7	16.9	12.5	.2	4.4	2.7
Total	188.0	337.0	270.0	3.0	96.0	61.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Brooke	0.8	0.3	1.3	1.5	2.4	19.5
Cabell	5.7	.4	7.2	6.6	10.8	101.5
Calhoun	5.4	2.1	8.3	7.5	11.9	111.4
Doddridge	7.2	2.3	7.4	6.8	11.1	114.2
Gilmer	6.8	2.4	9.5	8.4	13.8	129.1
Hancock	1.5	.6	1.8	1.8	2.9	26.3
Jackson	5.9	2.3	8.6	8.4	12.5	129.4
Lincoln	10.6	3.1	13.2	12.1	21.2	172.2
Marion	3.6	2.0	7.3	6.9	10.8	103.2
Marshall	7.4	2.2	6.6	6.5	11.3	103.5
Mason	5.0	2.5	9.2	9.0	12.9	128.4
Monongalia	6.5	1.8	7.2	7.4	12.5	99.6
Ohio	1.7	.6	1.8	1.8	3.1	28.6
Pleasants	3.0	1.0	3.5	3.4	5.6	47.6
Putnam	9.3	2.5	9.8	8.6	15.3	132.8
Ritchie	7.1	3.0	11.2	10.9	16.4	156.2
Roane	7.0	2.6	10.1	9.3	14.1	140.0
Tyler	4.4	1.4	5.4	5.2	8.7	74.8
Wayne	11.8	3.2	14.7	12.8	22.3	184.9
Wetzel	13.0	3.9	11.0	10.4	17.3	175.6
Wirt	3.8	1.8	6.2	5.6	8.6	86.8
Wood	4.5	2.0	7.7	7.1	11.5	108.4
Total	132.0	44.0	169.0	158.0	257.0	2,374.0

Table 94. — *Volume of sawtimber on commercial forest land in the National forest geographical sampling unit, by county and species, 1961*

(In millions of board feet)

County[1]	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Grant	1.2	2.0	2.1	5.3	1.4	4.9
Greenbrier	11.2	17.8	19.8	48.8	11.4	43.5
Hampshire	.3	.5	.5	1.3	.3	1.3
Hardy	4.6	7.8	10.7	23.1	6.9	24.4
Nicholas	2.0	4.3	5.2	11.5	2.9	10.8
Pendleton	8.8	18.8	21.9	49.5	14.3	52.0
Pocahontas	27.9	52.3	58.6	138.8	31.0	111.5
Preston	.4	.8	.8	2.0	.4	2.0
Randolph	17.9	30.1	37.2	85.2	18.0	60.3
Tucker	9.3	16.3	17.6	43.2	10.3	35.8
Webster	5.4	12.3	15.6	33.3	8.1	27.5
Total	89.0	163.0	190.0	442.0	105.0	374.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Grant	3.9	1.0	0.9	2.0	3.5	1.8
Greenbrier	32.7	6.6	7.6	17.8	25.3	13.9
Hampshire	.9	.3	.2	.4	.8	.4
Hardy	16.2	4.2	5.0	8.1	13.7	7.3
Nicholas	6.4	2.7	2.4	3.5	6.4	3.3
Pendleton	37.9	12.8	10.5	17.5	36.7	17.8
Pocahontas	69.3	31.0	25.7	43.0	66.2	36.1
Preston	1.2	.4	.4	.7	1.1	.6
Randolph	39.9	14.6	15.2	25.1	36.9	19.7
Tucker	25.0	7.9	7.4	13.1	23.5	12.5
Webster	16.6	7.5	6.7	9.8	16.9	8.6
Total	250.0	89.0	82.0	141.0	231.0	122.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Grant	5.4	0.8	2.9	3.1	2.1	33.7
Greenbrier	46.8	8.5	22.7	24.2	21.6	282.6
Hampshire	1.2	.3	.4	.8	.7	8.0
Hardy	18.6	4.6	10.5	13.1	13.6	146.2
Nicholas	8.2	2.1	5.0	6.8	5.7	66.2
Pendleton	54.6	8.4	20.3	35.4	26.2	344.4
Pocahontas	92.3	22.6	62.9	81.6	57.5	730.7
Preston	1.6	.4	.8	1.1	.9	11.6
Randolph	53.0	13.2	36.6	46.4	32.0	410.9
Tucker	35.3	6.5	17.0	23.9	18.2	236.4
Webster	23.0	5.6	13.9	20.6	15.5	180.3
Total	340.0	73.0	193.0	257.0	194.0	2,451.0

[1] Volumes are for partial counties only; for volumes for the entire county, see table 95.

Table 95. — *Volume of sawtimber in counties within both the National forest and the Northeastern or Southern sampling units, by species, 1961*

(In millions of board feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Grant	17.1	7.2	10.0	34.3	49.4	67.0
Greenbrier	29.6	31.5	27.9	89.0	71.2	166.4
Hampshire	25.3	7.3	10.1	42.7	72.1	97.9
Hardy	24.7	14.4	22.6	61.7	57.1	99.9
Nicholas	14.6	12.8	13.6	41.0	51.1	108.4
Pendleton	34.5	27.3	32.4	94.2	61.9	114.2
Pocahontas	44.0	57.3	64.1	165.4	73.4	167.7
Preston	22.1	8.2	11.1	41.4	55.7	64.9
Randolph	49.7	42.0	54.8	146.5	129.3	206.1
Tucker	21.8	19.7	21.6	63.1	39.8	79.4
Webster	22.6	18.3	21.8	62.7	63.0	99.1
Total	306.0	246.0	290.0	842.0	724.0	1,271.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Grant	65.9	37.2	34.2	6.5	34.3	19.6
Greenbrier	145.5	159.8	131.8	37.6	77.2	60.3
Hampshire	94.1	56.7	49.2	4.9	45.9	24.8
Hardy	91.8	47.3	42.8	12.4	51.4	29.1
Nicholas	95.7	131.9	100.5	15.8	41.7	44.8
Pendleton	130.0	88.9	50.2	20.9	72.6	44.4
Pocahontas	144.4	79.9	59.4	46.5	90.4	53.8
Preston	90.9	72.5	40.6	5.2	33.4	23.0
Randolph	177.3	109.0	88.7	32.6	112.5	60.6
Tucker	57.9	31.2	26.6	15.9	42.6	23.7
Webster	94.5	58.6	47.0	13.7	47.0	25.9
Total	1,188.0	873.0	671.0	212.0	649.0	410.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Grant	33.5	18.2	51.9	32.4	45.8	495.9
Greenbrier	120.7	56.8	156.9	52.7	120.1	1,357.0
Hampshire	42.7	25.9	67.6	46.3	67.3	695.4
Hardy	55.7	25.9	66.2	55.7	66.1	701.4
Nicholas	57.1	38.5	116.9	29.3	88.8	920.5
Pendleton	102.5	34.2	80.8	75.3	90.0	965.9
Pocahontas	117.4	39.2	108.9	110.9	101.9	1,193.8
Preston	28.0	23.4	60.2	39.6	61.0	598.4
Randolph	131.7	56.9	140.2	106.6	120.7	1,472.2
Tucker	56.7	16.9	46.3	41.1	44.7	522.8
Webster	53.0	25.1	69.1	50.1	67.6	713.7
Total	799.0	361.0	965.0	640.0	874.0	9,637.0

Table 96. — *Volume of sawtimber on commercial forest land in the Northeastern geographical sampling unit, by county and species, 1961*

(In millions of board feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Barbour	8.4	1.7	1.4	11.5	32.3	28.3
Berkeley	8.4	2.5	2.9	13.8	24.2	26.5
Braxton	14.2	4.8	8.3	27.3	57.5	66.2
Grant*	15.9	5.2	7.9	29.0	48.0	62.1
Hampshire*	25.0	6.8	9.6	41.4	71.8	96.6
Hardy*	20.1	6.6	11.9	38.6	50.2	75.5
Harrison	6.8	1.4	1.2	9.4	33.2	58.2
Jefferson	2.8	.6	.8	4.2	9.5	9.9
Lewis	9.6	2.7	3.2	15.5	27.8	29.7
Mineral	13.8	4.3	5.1	23.2	48.9	63.0
Morgan	8.1	2.9	4.0	15.0	27.8	36.6
Pendleton*	25.7	8.5	10.5	44.7	47.7	62.1
Pocahontas*	16.2	5.1	5.4	26.7	42.4	56.2
Preston*	21.7	7.4	10.3	39.4	55.3	62.8
Randolph*	31.8	12.1	17.5	61.4	111.6	145.7
Taylor	3.9	.8	1.2	5.9	14.5	13.7
Tucker*	12.5	3.4	4.0	19.9	29.5	43.6
Upshur	11.9	3.2	3.6	18.7	32.9	41.7
Webster*	17.2	6.0	6.2	29.4	54.9	71.6
Total	274.0	86.0	115.0	475.0	820.0	1,050.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Barbour	29.1	26.5	15.6	5.2	14.6	6.5
Berkeley	26.8	18.1	17.0	1.1	13.9	7.2
Braxton	62.1	52.7	36.8	5.5	32.9	15.6
Grant*	62.0	36.2	33.3	4.5	30.8	17.8
Hampshire*	93.2	56.4	49.0	4.5	45.1	24.4
Hardy*	75.6	43.1	37.8	4.3	37.7	21.8
Harrison	34.8	20.8	17.5	5.1	13.7	5.9
Jefferson	10.2	8.0	5.5	.8	5.1	2.5
Lewis	35.2	29.1	17.6	2.9	13.3	9.0
Mineral	53.9	34.7	26.7	3.4	30.3	13.8
Morgan	33.4	21.2	18.0	1.9	16.6	9.0
Pendleton*	92.3	76.1	39.7	3.3	35.8	26.6
Pocahontas*	75.3	48.9	33.9	3.4	24.0	17.7
Preston*	89.7	72.1	40.2	4.5	32.3	22.4
Randolph*	137.4	94.3	73.7	7.4	75.4	41.0
Taylor	12.9	12.1	6.9	2.0	6.9	3.5
Tucker*	32.9	23.3	19.2	2.8	19.1	11.2
Upshur	41.3	33.3	22.3	3.5	20.4	10.8
Webster*	77.9	51.1	40.3	3.9	30.1	17.3
Total	1,076.0	758.0	551.0	70.0	498.0	284.0

CONTINUED

Table 96 — *continued*

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Barbour	10.0	7.4	28.2	18.5	17.7	239.9
Berkeley	14.3	8.2	21.7	12.9	19.6	211.5
Braxton	32.3	18.2	47.5	28.6	40.2	496.1
Grant*	28.1	17.4	49.0	29.3	43.6	462.1
Hampshire*	41.5	25.6	67.2	45.5	66.6	687.4
Hardy*	37.1	21.3	55.7	42.6	52.5	555.2
Harrison	6.7	7.5	23.6	23.6	9.5	260.1
Jefferson	4.3	2.6	6.8	5.5	5.9	76.6
Lewis	15.0	8.5	24.3	14.0	23.0	249.4
Mineral	29.6	16.6	40.8	25.3	34.4	421.4
Morgan	17.7	10.0	25.7	14.7	23.2	255.8
Pendleton*	47.9	25.9	60.4	39.9	63.7	621.4
Pocahontas*	25.2	16.6	45.8	29.3	44.0	462.7
Preston*	26.4	23.0	59.4	38.5	60.2	586.8
Randolph*	78.7	43.8	103.4	60.3	88.3	1,061.0
Taylor	5.8	3.6	11.8	7.1	7.5	108.3
Tucker*	21.4	10.4	29.3	17.2	26.4	286.3
Upshur	21.0	11.9	30.2	18.7	26.7	314.7
Webster*	30.0	19.5	55.2	29.5	52.0	533.3
Total	493.0	298.0	786.0	501.0	705.0	7,890.0

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 95.

Table 97.—*Volume of sawtimber on commercial forest land in the Southern geographical sampling unit, by county and species, 1961*

(In millions of board feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Boone	12.6	10.0	8.3	30.9	47.1	110.5
Clay	6.2	4.6	4.4	15.2	24.2	45.0
Fayette	14.6	14.2	8.0	36.8	53.2	114.8
Greenbrier*	18.4	13.7	8.1	40.2	59.8	122.9
Kanawha	15.4	13.3	12.5	41.2	68.1	143.6
Logan	8.8	8.9	7.0	24.7	42.5	102.5
McDowell	18.0	6.5	4.2	28.7	45.6	82.7
Mercer	8.6	4.1	2.9	15.6	25.6	40.9
Mingo	13.3	8.1	3.8	25.2	37.3	70.6
Monroe	11.0	4.8	2.0	17.8	26.1	39.2
Nicholas*	12.6	8.5	8.4	29.5	48.2	97.6
Raleigh	15.0	11.9	6.3	33.2	45.6	89.1
Summers	6.7	4.1	4.4	15.2	24.9	47.9
Wyoming	9.8	10.3	6.7	26.8	41.8	96.7
Total	171.0	123.0	87.0	381.0	590.0	1,204.0

CONTINUED

Table 97 — *continued*

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Boone	97.1	130.6	109.0	13.4	36.2	40.6
Clay	44.0	67.0	44.4	5.3	13.6	18.8
Fayette	102.4	143.5	117.6	16.8	48.8	45.3
Greenbrier*	112.8	153.2	124.2	19.8	51.9	46.4
Kanawha	127.1	185.7	139.3	16.9	50.0	55.5
Logan	81.3	113.1	100.5	10.4	43.5	38.0
McDowell	81.0	110.5	81.6	9.3	23.3	30.4
Mercer	43.8	58.5	40.6	2.2	13.3	16.1
Mingo	70.6	94.4	72.0	10.7	21.3	24.8
Monroe	45.5	56.6	40.6	2.9	12.1	14.9
Nicholas*	89.3	129.2	98.1	12.3	35.3	41.5
Raleigh	87.1	120.7	91.4	12.0	32.2	35.0
Summers	46.8	64.4	47.5	4.4	13.7	20.1
Wyoming	84.2	116.6	93.2	11.6	35.8	36.6
Total	1,113.0	1,544.0	1,200.0	148.0	431.0	464.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Boone	51.4	40.9	116.4	19.7	86.4	899.3
Clay	23.0	14.9	55.1	10.7	35.6	401.6
Fayette	72.3	47.6	114.6	24.7	89.6	991.2
Greenbrier*	73.9	48.3	134.2	28.8	98.2	1,074.4
Kanawha	74.6	51.3	161.3	27.1	112.3	1,212.8
Logan	61.4	40.8	107.9	17.8	78.7	838.4
McDowell	42.6	26.4	106.6	17.8	69.7	727.5
Mercer	20.8	13.0	54.1	10.6	35.2	374.7
Mingo	42.8	21.2	90.1	15.0	57.6	628.4
Monroe	23.7	12.0	48.9	9.3	31.9	363.7
Nicholas*	48.9	36.4	111.9	22.5	83.1	854.3
Raleigh	51.4	34.8	90.5	15.0	68.9	773.7
Summers	19.3	15.8	57.2	10.1	39.7	411.8
Wyoming	52.9	37.6	109.2	18.9	73.1	808.2
Total	659.0	441.0	1,358.0	248.0	960.0	10,360.0

* Volumes are shown only for the area outside the National forest; for volumes for the entire county, see table 95.

Table 98. — *Volume of sawtimber on commercial forest land in the Northwestern geographical sampling unit, by county and species, 1961*

(In millions of board feet)

County	Yellow pines	Hemlock	Other softwoods	Total softwoods	White oak	Northern red oak
Brooke	2.2	0.1	0.2	2.5	7.7	7.3
Cabell	10.6	.5	1.2	12.3	40.8	35.1
Calhoun	13.4	.5	.7	14.6	44.5	44.5
Doddridge	10.4	.6	1.0	12.0	44.2	46.4
Gilmer	15.3	.6	1.0	16.9	49.5	48.2
Hancock	3.0	.1	.2	3.3	11.2	10.6
Jackson	12.6	.6	1.2	14.4	53.0	39.0
Lincoln	21.0	1.4	1.2	23.6	63.2	64.4
Marion	11.4	.5	1.0	12.9	42.4	42.6
Marshall	10.1	.4	1.2	11.7	40.2	39.5
Mason	14.5	.6	1.5	16.6	53.1	45.1
Monongalia	11.9	.8	.7	13.4	37.4	35.3
Ohio	2.8	.1	.2	3.1	10.6	10.8
Pleasants	5.7	.4	.5	6.6	18.5	16.8
Putnam	15.1	.6	1.5	17.2	50.1	45.3
Ritchie	17.8	.9	1.5	20.2	61.8	57.4
Roane	15.7	.8	1.2	17.7	55.6	48.9
Tyler	9.4	.4	.7	10.5	29.3	24.1
Wayne	24.5	1.3	1.5	27.3	68.0	64.8
Wetzel	14.1	.8	1.8	16.7	64.9	73.6
Wirt	8.9	.5	1.0	10.4	34.4	34.6
Wood	12.6	.5	1.0	14.1	43.6	39.7
Total	263.0	13.0	22.0	298.0	924.0	874.0

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Brooke	5.0	10.3	4.5	0.0	1.7	0.7
Cabell	24.5	54.5	22.2	.3	11.8	2.5
Calhoun	27.5	49.5	24.4	.2	11.2	4.4
Doddridge	27.4	58.5	26.8	.3	13.9	3.8
Gilmer	30.8	66.1	28.7	.4	14.8	4.4
Hancock	6.7	11.5	6.2	.0	2.1	1.1
Jackson	30.9	72.9	26.3	.3	13.5	4.4
Lincoln	43.0	73.4	33.2	.5	17.7	6.1
Marion	26.2	55.2	25.1	.2	10.1	4.2
Marshall	24.6	54.9	24.4	.1	12.1	4.2
Mason	31.0	69.8	28.9	.2	13.4	5.3
Monongalia	23.8	50.3	21.3	.3	10.8	3.6
Ohio	6.8	16.9	7.0	.0	3.1	1.1
Pleasants	10.9	22.0	10.1	.1	5.6	1.9
Putnam	30.2	67.0	27.6	.5	15.8	3.5
Ritchie	37.5	84.1	35.8	.3	18.1	6.3
Roane	32.4	76.4	30.7	.5	15.8	5.2
Tyler	17.6	39.6	15.6	.2	8.3	2.5

CONTINUED

Table 98 — *continued*

County	Chestnut oak	Other oaks	Hickory	Yellow birch	Sugar maple	Red maple
Wayne	43.4	89.5	37.1	.7	20.1	6.2
Wetzel	41.4	84.2	39.5	.5	22.3	6.2
Wirt	20.8	45.0	20.7	.2	9.8	3.5
Wood	26.6	61.4	24.9	.2	11.0	3.9
Total	569.0	1,213.0	521.0	6.0	263.0	85.0

County	Beech	Basswood	Yellow-poplar	Ash, walnut, cherry	Other hardwoods	Total hardwoods
Brooke	2.8	0.8	3.7	3.4	5.0	52.9
Cabell	18.5	3.8	19.1	15.6	27.9	276.6
Calhoun	17.8	4.3	22.3	18.5	27.5	296.6
Doddridge	24.3	5.1	20.9	18.1	29.7	319.4
Gilmer	22.8	4.8	26.0	20.9	34.8	352.2
Hancock	5.0	1.1	4.7	4.2	6.2	70.6
Jackson	19.9	4.0	22.4	19.9	32.4	338.9
Lincoln	33.5	6.0	34.9	27.5	48.6	452.0
Marion	13.2	4.1	20.5	18.1	25.6	287.5
Marshall	25.9	5.3	18.4	17.7	28.8	296.1
Mason	18.5	5.1	24.7	23.5	32.0	350.6
Monongalia	21.1	3.6	19.7	17.0	29.1	273.3
Ohio	5.8	1.3	5.1	5.3	8.1	81.9
Pleasants	9.4	2.0	9.4	8.5	13.1	128.3
Putnam	28.9	5.0	26.4	20.7	39.9	360.9
Ritchie	25.4	6.7	31.0	29.1	40.8	434.3
Roane	23.2	5.1	27.7	23.3	35.4	380.2
Tyler	14.7	2.7	14.2	11.9	21.2	201.9
Wayne	35.9	6.1	38.6	29.4	54.8	494.6
Wetzel	44.3	10.0	31.2	29.1	47.3	494.5
Wirt	13.1	4.0	17.3	15.5	21.8	240.7
Wood	16.0	4.1	20.8	17.8	28.0	298.0
Total	440.0	95.0	459.0	395.0	638.0	6,482.0

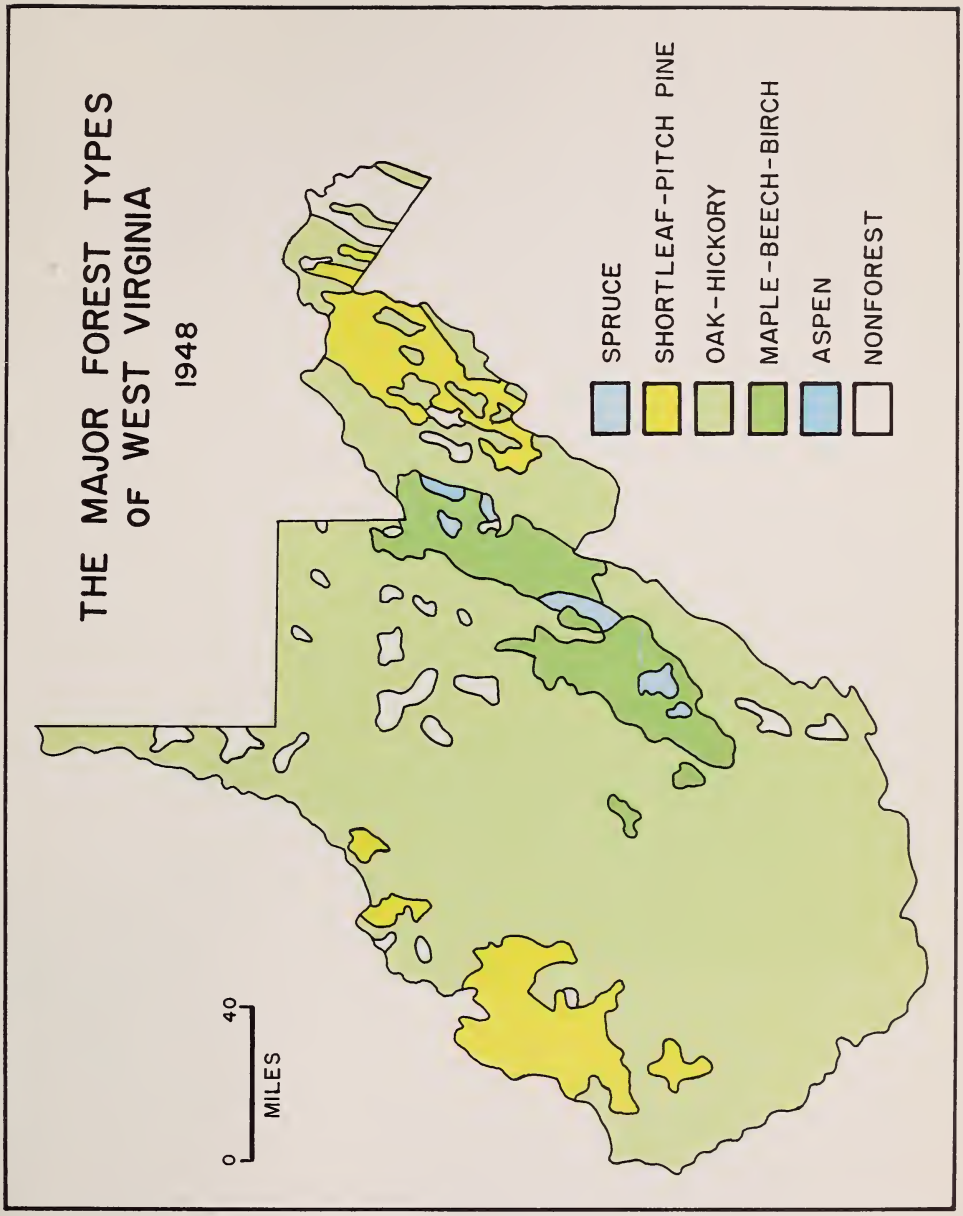


Figure 17.—The major forest cover types in West Virginia.

A13.8
NE-2

WOOD · WATER · FORAGE
WILDLIFE · RECREATION
FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE